

Library Resources & Technical Services

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American Research Library Collections**
Hendrik Edelman

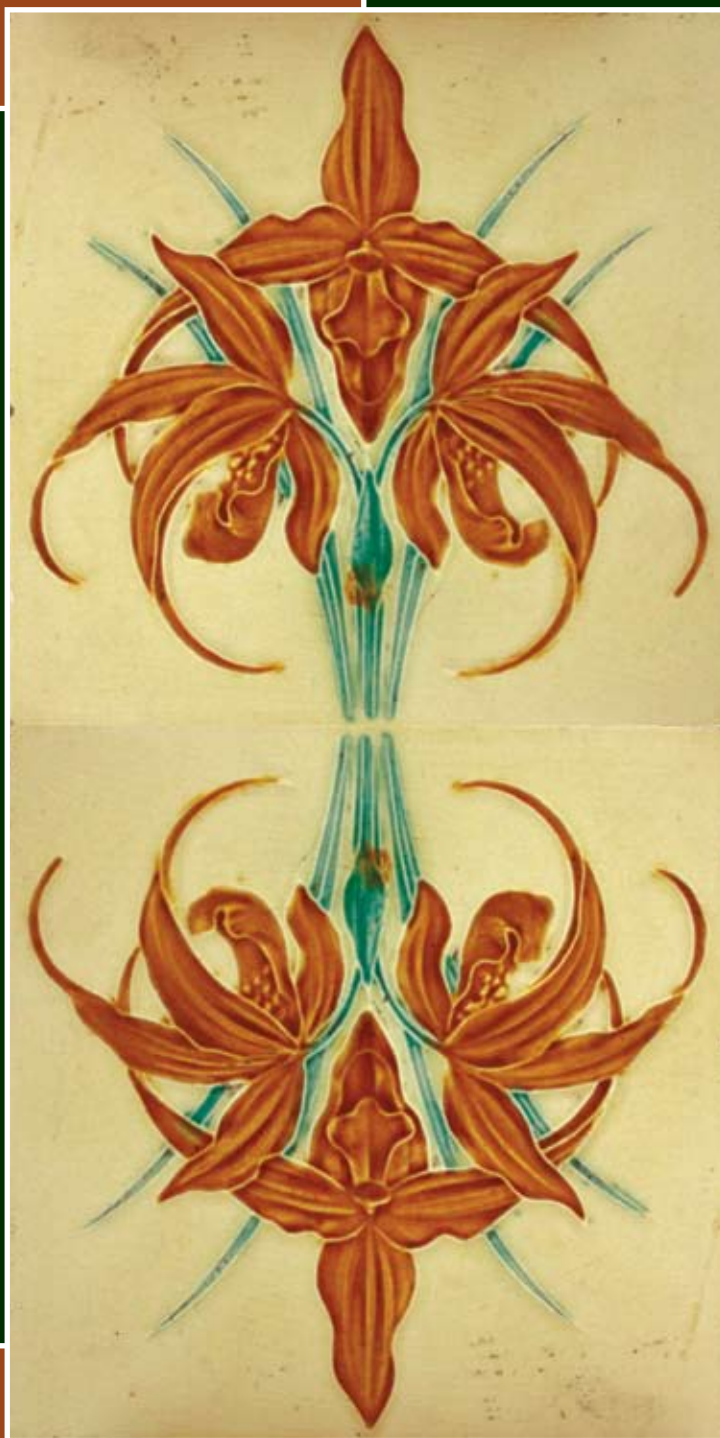
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Cover photo by Angela Hanshaw details antique tiles.

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Editorial

Peggy Johnson



This is the last issue of volume 50, an important milestone for any journal. *Library Resources & Technical Services* is your journal, though I have had the privilege to edit it for a few years. It has continued and prospered over five decades because of the authors who contribute papers, the Editorial Board, and the staff of ALA Production Services. Two board members rotated off the board after the 2006 Annual Conference, and I want to thank them for their service as referees and as editorial advisors. They are Trisha Davis (Ohio State University) and Linda Phillips (University of Tennessee). Two new members joined the board: Mary Casserly (University at Albany) and Steven Bosch (University of Arizona). I offer a special thank-you to Edward Swanson, who not only serves as book review editor, but also indexes the journal and has done so since 1979. I also wish to thank Angie Hanshaw and Christopher Keech of ALA Production Services, past and present production editors (respectively) for our journal, and Christine Taylor, ALCTS communication specialist, the board's and journal's liaison with the ALCTS office.

Assembling this issue has been poignant for me because it contains three papers presented at the Janus Conference on "Research Library Collections: Managing the Shifting Ground between Writers and Readers." The Janus Conference, a forum devoted to re-envisioning collection development in research libraries held at Cornell University, October 9–11, 2005, grew out of Ross Atkinson's vision that the time was ripe for collections development librarians to take action in shaping our future. Ross, who passed away this spring, led that important gathering and presented perhaps his last paper at the conference. I'm proud to publish Ross's paper, which reflects the passion and the insight that he brought to collection development and management, and to all aspects of librarianship. He drew on many of the themes that he explored in previous publications, most of which were assembled in *Community, Collaboration, and Collections: The Writings of Ross Atkinson*, edited by Robert Alan and Bonnie MacEwan, with an introduction by Sarah Thomas (Association for Library Collections & Technical Services, 2005).

As ALCTS prepares for its fiftieth anniversary celebration, several initiatives are planned that will commemorate *LRTS's* steady contribution to the profession during fifty years. Underway are plans for a cumulative index for volumes 26 through 50, to be distributed in print to subscribers, posted on the ALCTS Web site, and available for sale; a paper article that will explore the history of *LRTS* and the topics it has addressed over its fifty years; and a reprinting of volume 1, number 1, for current subscribers.

Letters to the Editor

February 28, 2006

Certain opinions about library catalogs and their rules in Joan Aliprand's article, "Scripts, Languages, and Authority Control" (*LRTS* 49, no. 4 [Oct. 2005]: 243-49) differ so much from mine that I must try to refute them lest they mislead the authors of the new edition of AACR.

I begin with some quotations from her article. "The source of authority that defines headings has an explicit or an implied language, and may include instructions on how to coordinate text in other languages—some written in other scripts—with the preferred language of the source of authority" (244). "Locale specific access points include names, uniform titles, subjects and additional parts of headings in the language of the catalog" (244). "Sources of authority that determine the content of a particular headings include cataloging rules, subject heading lists, and thesauri" (244-45). "The basic need of a user is the ability to search the catalog using his or her preferred language and that language must be written in the proper script" (245). "To establish headings in a specific language and script, one must choose a source of authority [i.e., cataloging rules] whose operative language—either explicitly or implied—is the language of the catalog user" (245). "Conceptually a separate logical catalog exists for each language, with separate authority files for names and subjects. In reality, these may be amalgamated into a single physical catalog, with repetitive data being eliminated. In thinking about multilingual and multiscript access, the catalog must be considered conceptually, that is, as a logical model, not as it is in actuality. The *Anglo-American Cataloging Rules*, 2nd ed. (AACR2) and Library of Congress subject headings (LCSH) are accepted so much as basic tools that catalogers may forget that the catalog they are building is for English speakers" (245).

I omit topical subject headings to focus on the cataloging rules. (Though why our rules don't include rules for subject headings, as Cutter's rules and the Vatican rules did, is beyond me.) I submit that AACR2 is intended for cataloging Anglo-American libraries whose collections contain items in many languages and scripts. Her logical model is so contrary to reality that anything built upon it would have a very fragile foundation. Part one of AACR2 defines multilingual and multiscript descriptions; see rule 1.0E1, "In the following areas give information transcribed from the item itself in the language and script (whenever practicable) in which it appears there: Title and statement of responsibility, Edition, Publication, distribution, etc., Series." Part two defines multilingual but monoscript access points for persons, geographic names, corporate bodies, and uniform titles. These access points must be in the roman script, but most are in their original language, not English. Geographic names are given in English if in general use (rule 23.2). Except for persons entered under given name (that is, forename), personal names are given in their original language, or a romanization of it (rules 22.3B3 and 22.3C). Most personal names are language neutral; for example, the heading, "Verne, Jules, [dates]" is fully adequate for editions of his works in languages using roman script. Only the titles of royalty, their consorts, children and grandchildren, and persons in religion are given in English (rule 22.16). The names and titles of nobility are given in the original language (rule 22.6), "Follow the proper name in the title by the personal name (excluding unused forenames) in direct order and the term or rank in the vernacular." More than three pages are devoted to treatment of surnames, with separately written prefixes in various languages (rule 22.5D). A corporate body is entered under

the name by which it is commonly identified; for example, “Ecole centrale lyonnaise,” not under an English translation (rule 24.1). Uniform titles for works created after 1500 use the title or form of title in the original language (rule 25.3). In AACR2, appendix A (pages 25–37) gives rules for capitalization of various foreign languages, including Bulgarian and Russian in Cyrillic script. For brevity I simplify things a bit, but the fact remains that except for geographic names, most name headings are in the original language, or romanizations of it when they are in another script; in short, AACR2 explicitly defines a multilingual catalog.

She also writes, “Canada, for example, has two official languages, English and French. Conceptually, authority control in Canada serves two locales: English speaking users and French speaking users” (245). This is true but somewhat misleading. In catalogs based on the English or the French version of AACR2, corporate bodies with German, Spanish, Italian, and so on language names have their headings in their respective languages. The same is true for persons entered under surname.

I heartily agree with her that “romanization is not good enough!” It is a disservice to those seeking nonroman script materials, but the concept of separate catalogs and separate rules for every language is not the path to a better catalog.

Since the 1980s, many catalogers of materials in some languages using nonroman scripts (Japanese, Arabic, Chinese, Korean, Persian, Hebrew, Yiddish [JACKPHY]) have assigned nonroman script access points so readers can find the authors and titles they want without first guessing how catalogers have transliterated their names into roman script. They have done so without any guidance from the cataloging rules. Needed are cataloging rules to allow nonroman access points and to provide authority control for them. At present, these JACKPHY languages nonroman access points lack effective automated authority control. But they are infinitely more helpful to those seeking nonroman resources than the romanized access points alone on which those seeking resources in languages using other nonroman scripts must rely.

This brings us to authority records as the means to authority control of access points. Again I begin with several quotations. “The limitation of one established form per record is imposed by the fact that in the *MARC 21 Format of Authority Data*, certain key data elements are singly occurring. Field 008 *Fixed-length data elements*, which is not repeatable, includes two positions that are each only one character long” (page 246). Were the cataloging rules expanded to allow nonroman script access points there would be no problem identifying the rules used in the MARC authority format field 008, fixed length data elements—the single character position would suffice. For authority control of these headings, I propose that one authority record be defined for each *entity* (person, corporate body, and so

on), with an authorized form in as many scripts and languages as that entity has on title pages of items in a library’s collection. As noted before, most modern personal names are language neutral—but none are script neutral, so one authorized per script would usually suffice. (From an earlier article of hers I am aware that some authors who write in Hebrew and Yiddish [both in Hebrew script] use different names for each.) An authorized heading would have references from variants in the same script or languages using that script. Early in her article she writes, “Unlike bibliographic records, where nonroman data can just be ignored or discarded when it cannot be handled, all parties working with synchronized authority files have to be able to see authority records in their entirety” (243). Though it would require some changes in software—possibly using the field link and sequence number, subfield \$8, with script or language codes to cluster authorized headings and their references in the same language or script—the method I advocate would better enable a cataloger to see all of the headings and references for an entity than separate linked records for different scripts. Making 1XX fields and the linkage subfield, \$6 repeatable, might also be part of the solution.

“When, in the future, all systems contributing to NAF have multiscript support . . .” (247). Whether the requirements for synchronized authority data justify the delay in improving local catalogs until all who participate in the synchronized authority file can see all scripts is not for me to say. It would seem to involve a cost-benefit analysis of cooperative cataloging.

She continues, “The benefit of precluding a single composite authority record with multiple syndetic structures is that such a record would be complicated, and difficult to process and update” (246). Because (as quoted above) it is important “to see authority records in their entirety, including data in nonroman scripts,” dividing it into multiple records will make seeing the whole picture much more complicated for catalogers. If a choice must be made between more simplicity for computers or catalogers, simplicity for catalogers seems preferable. And multiple authority records for an entity may be more complex for the computer, too: “The other option is to have multiple authority files (for example, one for each language) and to link them all together to provide multilingual and multiscript access” (247). Simultaneous display of authority records from separate, linked files would be even more complicated. Attempting to maintain synchronization of updates of such files across multiple networks would be fraught with errors. A single, sometimes multiscript authority record with everything pertaining to an entity is preferable to either separate linked authority records in one file or separate linked records in different authority files. This is because a single record requires less synchronization and is thus less prone to corruption. Note that were this suggestion adopted, author-

ity records would be more complex due to the use of the already defined \$8 control subfield only when an entity has names in more than one script or, more rarely, language.

I believe her statement “Including links to other established headings in the record is also possible. . . .” (247) must mean: Including links in the record to established headings *in other records* is also possible. The reference in the next paragraph to “the last line in figure 1” should refer to figure 2.

It is not possible to define all the intricacies of multi-script authority control in even a long letter. An insoluble part of the problem is that a cataloger can determine the language of the item in hand to be cataloged, but not the language of every future catalog user. Basing the catalog’s definition on the notion that our cataloging rules are for English users only and concept of language-specific rules for language-specific catalogs will not bring about access equity for those seeking nonroman library resources.—*James E. Agenbroad, retired systems analyst, Library of Congress*

April 12, 2006

The purpose of my paper, “Scripts, Languages, and Authority Control,” and my original presentation in 2003, was to shift the focus of discussion on the use of nonroman scripts in library data from the scripts themselves to languages.

In October 2005, the ALCTS Executive Committee established the Task Force on Non-English Access to address “access to library resources in all languages and scripts” (www.ala.org/ala/alcts/alctspubs/alctsnewsletter/voll16no5/announcements/TFnonenglish/tfnoneng.htm). That is, the ALCTS Executive Committee recognizes that a key issue for ALA is providing library service to people who use a language other than English, whether the language is written in a nonroman script or not.

In his letter to the editor, Mr. Agenbroad covers two topics: “English” headings, and his view on how an authority record should be structured.

Using foreign language names or terms in an English language environment is normal practice—just read any newspaper written in English! Similarly, headings established according to AACR2 for a catalog to be used by people who read English may include, or consist entirely of, names or terms from a foreign language (sometimes converted to Latin script by romanization). So in an English language environment whether the words are written or spoken, borrowings from foreign languages may occur.

How are foreign names or terms occurring in headings formulated according to AACR2 incorporated into a catalog? In an English-language environment, the ALA Filing Rules is the usual standard for ordering bibliographic records. The rules do provide for separate ordering of text in “nonroman alphabets,” but, as Mr. Agenbroad noted (in the third paragraph of his letter), access points defined by AACR2 “must be in the roman script” (that is, Latin script).

Foreign language text written in Latin script is not given special treatment under the ALA Filing Rules. What would be significant differences in the language of origin are either ignored or converted to English alphabet equivalents, so that foreign language text can be forced into the A–Z order of English. But, of course, this is the order expected by people who read English, so this cavalier treatment of foreign language text is understandable in what I called an “English-speaking locale.”

The second part of Mr. Agenbroad’s letter (beginning with paragraph 6) takes issue with the model for MARC 21 authority records presented in my paper, and describes an alternative with the following features:

one authority record for each entity (person, corporate body, etc.) with an authorized form in as many scripts and languages as the entity has on titles pages of items in a library’s collection.

An authorized heading would have references from variants in the same script or languages using that script.

The MARC 21 Format for Authority Data specifies that the data elements identifying the descriptive cataloging rules (008/10) and subject headings/thesaurus (008/11) used to formulate the 1XX heading are singly occurring. To accommodate the multiple authorized forms that his model contains, Mr. Agenbroad proposes: “Were the cataloging rules expanded to allow nonroman script access points there would be no problem identifying the rules used in the MARC authority format field 008, fixed length data elements the single character position would suffice.”

The record model proposed by Mr. Agenbroad will not work unless the cataloging rules are expanded to allow nonroman access points. Whether this will happen is questionable, given the Joint Steering Committee for Revision of AACR: RDA’s (JSC) current focus on resource description and access (RDA) as well as the history of a previous attempt. In 2000, ALA submitted a proposal to JSC: to modify AACR2 to provide an option for assigning nonroman access points. The ALA proposal had its origin in a proposal submitted to the Committee on Cataloging: Description and Access (CC:DA) by Mr. Agenbroad in 1999. The “Outcomes of the Meeting of the Joint Steering Committee Held in Washington, D.C., USA, 2–4 April 2001” (<http://www.collectionscanada.ca/jsc/0104out.html>) report that the ALA proposal “was greeted with largely negative responses.” In 2001, ALA withdrew its proposal.

There are many other problems with the record model. For example, it is unclear whether the proposed alternative authorized forms are language- or script-based. Mr. Agenbroad writes: “An authorized heading would have references from variants in the same script or languages using that

script” and about linking of fields “to cluster authorized headings and their references in the same language or script.”

In 1993, I examined linking of alternate graphic representation in authority records rigorously (“Linking of Alternate Graphic Representation in USMARC Authority Records,” *Cataloging & Classification Quarterly* 18, no. 1 [1993]: 27–62). This was where I came to the conclusion that it is better to have multiple authority records (each with its own source of authority) than a record containing multiple preferred headings with accompanying syndetic structures. Mr. Agenbroad prefers a single, multistructured authority record, asserting that “Simultaneous display of authority records would be even more complicated.”

I would think that each authority record could be viewed in its own window, tiled or stacked as the cataloger chose. But most of the time, the cataloger will be dealing with a single authority record, created in accordance with the source of authority used by the cataloging agency. In this record, variants of the preferred form, in any language and script, will be seen from tracings (see figure 3 in my paper, for an example). With respect to alternate graphic representation (880 fields) in authority records, I demonstrated in my 1993 paper that script-based linkage in authority records was inappropriate.

Mr. Agenbroad asks whether “including links to other established headings in the record” means “including links in the record to established headings in other records.” Because only one established heading is shown in figure 3, and the following sentence begins “The 7XX fields, heading

entry linking fields,” this is indeed what is meant. As for the erroneous “figure 1,” it was in my proof corrections, but must have been overlooked.

With respect to Mr. Agenbroad’s concerns about “access equity for those seeking nonroman library resources,” the problem is broader than that, and has two parts. Access needs to be provided to library resources in all foreign languages, regardless of script. For example, Modern Vietnamese is written in Latin script, but few library systems display Vietnamese text correctly. The other side of access equity is providing library service to people whose primary language is not English. Public libraries that serve multilingual communities are leaders in this work.

If we are going to provide optimal library service to all, regardless of language, we need to understand that most scripts are used to write more than one language. We therefore need to focus on support for specific languages, including being able to write them in their correct script(s), rather than focusing on “nonroman scripts.” We also need to keep in mind that it will soon be possible to include additional scripts in authority records. This opens up the prospect of being able to mediate searches in any language and its correct script via a library’s authority file (provided that see from tracings in those languages and their scripts are present). Exactly how authority records containing scripts other than Latin will be structured for MARC 21 exchange will be determined by the Library of Congress.—*Joan Aliprand, independent researcher*



Association for Library Collections & Technical Services Annual Report 2005–2006

By Rosann Bazirjian, 2005–2006 ALCTS President

The Association for Library Collections & Technical Services (ALCTS) is committed to shaping and responding to all matters related to the selection, identification, acquisition, organization, management, retrieval, and preservation of recorded knowledge. ALCTS strives to provide this leadership to its members through education, publication, and collaboration. This year, the division focused its efforts and accomplishments in the following areas: education, collaboration through active involvement in policy formulation, publication, and organization.

Education

Continuing education has been a cornerstone of the services that ALCTS provides to its members. Because of its importance to ALCTS, the Education Committee (Karen Letarte, chair) sponsored an Education Action Summit during the Midwinter Meeting. Members from various division and section committees, the Council of Regional Groups, and other ALCTS leaders attended a half-day summit designed to move the ALCTS continuing education program into a higher gear. Maureen Sullivan facilitated for a thought-provoking afternoon, during which attendees talked about educational needs and the resources required to advance continuing education within ALCTS. We look forward to implementing some of the conclusions that were reached during the meeting.

A number of new workshops were developed and delivered in 2005 and 2006. Among them are:

- Basic Collection Development and Management
- Principles of Controlled Vocabulary and Thesaurus Design, an ALCTS and Library of Congress Workshop
- Metadata Standards and Applications, an ALCTS and Library of Congress Workshop
- Metadata and Digital Library Development, an ALCTS and Library of Congress Workshop
- Digital Project Management for the 21st Century, an ALCTS and Library of Congress Workshop

Continuing workshops include:

- Basic Subject Cataloging Using LCSH, an ALCTS/PCC Workshop

- Rules and Tools for Cataloging Internet Resources, an ALCTS and Library of Congress Workshop
- Web Course: Fundamentals of Acquisitions

Collaboration and Policy Formation

Collaboration and policy formation are key areas for ALCTS. Focusing on policy issues that affect our members is an important service that ALCTS provides. This year we passed two resolutions that address policy. The board passed the "Resolution on the Distribution of Government Information by the Government Printing Office," which encouraged the Government Printing Office to work in close collaboration with the library and information communities to develop efficient and effective mechanisms for the dissemination and preservation of government information in digital form. We also joined the Association of Research Libraries (ARL) and the Association of College and Research Libraries in endorsing the statement "Urgent Action Needed to Preserve Scholarly Electronic Resources," thereby acknowledging the importance of the preservation of electronic journal collections.

We extended a collaborative partnership with ARL in the area of digital preservation. This culminated in an ALCTS Forum on Digital Preservation at the 2006 Annual Conference in New Orleans. In the spirit of collaboration, the ALCTS board approved a new award, the ALCTS Outstanding Collaboration Citation, to encourage improvements and benefits in providing and managing library collaboration between libraries and individuals, vendors, and organizations that work with libraries. It should also be noted that title of the Bowker/Ulrich's Award has been changed to the CSA/Ulrich's Award.

Publications

Under the dynamic leadership of Publications Committee Chair Narda Tafuri, ALCTS produced a record number of publications in 2005/2006. They are:

- *Managing Electronic Resources: Contemporary Problems and Emerging Issues*
- *Preservation Manager's Guide to Cost Analysis*
- *From Catalog to Gateway: Charting a Course for Future Access*
- *Knowledge without Boundaries: Organizing Information for the Future*
- *Community Collaboration and Collections: The Writings of Ross Atkinson*
- *Cataloging Correctly for Kids*, 4th edition

Forthcoming titles include:

- *Copy Cataloging Done Smarter: Using Program for Cooperative Cataloging (PCC) Records in Non-PCC Libraries*
- *LBI Guide to Library Binding*
- *SALSA de Tópicos/Subjects in SALSA: Spanish and Latin American Subject Access*

Web publications include:

- USPPI (U.S. Periodical Price Index) 2005
- Serials Glossary, 3rd revised edition
- ALCTS@Glance e-mail updates
- Foreign Book Dealers Directory Database
- CRG Speaker's Directory
- Training Catalogers: A Checklist for Managers and Trainers

Mary Beth Weber was appointed as *ALCTS Newsletter Online* (ANO) editor and Nanette Donahue was appointed the assistant editor.

Organization

In addition to the superb work of the Planning Committee (Helen Reed, chair) on a new ALCTS Strategic Plan, a record number of task forces have been created to address new issues. To further the work of the Web Redesign Task Force (Stephanie Schmitt, chair), we created the Evolving Communications Technologies Task Force (John Duke, chair) to employ evolving technology to enhance and facilitate communication. The Task Force on Non-English Access (Beth Picknally Camden, chair) was appointed to examine our role in enabling access to library resources in all languages and scripts and in addressing the needs of users of these materials through the development of library standards and practices. We appointed the ALCTS 50th Anniversary Task Force and the Digital Preservation Task Force. We reviewed the membership of the Committee on Cataloging: Description and Access and created new constituency representation. These new membership groups represent areas, such as the book industry profession and metadata, that have emerged in recent years.

Due to the enormous response and the success of the Sage Support Staff Travel Grants and increased support from Sage, we have increased the number of recipients from three to six.

Overall, ALCTS has had a very busy year. We look forward to the fiftieth anniversary celebration and are planning activities for the 2007 Midwinter Meeting, with our big bash at the 2007 Annual Conference in Washington, D.C. We have moved forward in so many ways—it is an exciting time for ALCTS.

Intelligent Design and the Evolution of American Research Library Collections

A Personal Reflection

By Hendrik Edelman

This paper presents a personal overview of the development of collection development and management as a specialization within the practice of librarianship. It gives particular attention to the activities among academic librarians and in academic libraries in the 1960s and 1970s that led to the creation of special interest groups within the Association for Library Collections & Technical Services.

As this conference is dedicated to looking toward the future of collection development and management, now seems an appropriate time to take another good look at the forces that have shaped American research library collections. Are they the product of careful planning, or did they evolve as the results of a series of random occurrences spurred by environmental influences? Are there past or recent trends to take into account in planning for the future?

The title of this introductory paper, alluding to contemporary debates in other segments of American society, is not to be taken too seriously. No acts of God to be reported here, although I can recall many devilish tricks from faculty, librarians, and university administrators trying to thwart the progress of building collections. The topic of this paper is really the evolution and accomplishments of our profession, particularly in the collection development field—a celebration of an intelligent and industrious profession.

I will talk about how collection development emerged as a professional responsibility in the second part of the twentieth century, and how the profession has empowered itself through research, methodology, documentation, and education. I will limit myself to the American experience. The profession in Europe developed differently, although in recent years there is much similarity. I also will limit myself to research libraries. Having taught general collection development for twenty-five years with great conviction and satisfaction, I am still convinced that much of the research results apply across the spectrum of the profession. However, we must recognize that the impetus for collection development interest and innovation really came from the research library community.

Academic Libraries Prior to World War II

If we are to celebrate our accomplishments today, it is good to remember it was not always that way.¹ Until World War II, library collection development was

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This paper was presented at the Janus Conference on "Research Library Collections: Managing the Shifting Ground between Writers and Readers," a forum devoted to re-envisioning collection development in research libraries, held at Cornell University October 9–11, 2005.

in the hands of library directors, with considerable, albeit very uneven, faculty input and effort. In several cases, the university president or the graduate school dean played an active role. Faculty recruitment and retention was the highest competitive priority, and, very often, library collections and the promise of acquisitions were the lure. There were, of course, some formidable library directors, such as William Warner Bishop, university librarian at the University of Michigan, 1915–41, who paid much attention to buying books, periodicals, and collections and soliciting gifts. In departmental and professional libraries, the faculty played the dominant role. The library profession, small as it was, was mainly concerned and identified with cataloging and classification.

With the decline in purchasing power in the 1930s also came concern for the collections. Library surveys in various parts of the country tried to assess the collections and explore the potential for resource sharing. Robert Downs, dean of library administration at the University of Illinois, 1915–41, developed the standard technique for collection description, an art that regrettably was lost for some generations.

The same concern for the fate of the collections was expressed in the meetings of the newly founded Association of Research Libraries (ARL), established in 1932, as well as in such scholarly societies as the American Historical Association. Studies intended to facilitate regional and national cooperation were commissioned, one of which, by the indefatigable and ubiquitous bibliographer and typographer, Douglas C. McMurtrie, has yet to be studied in detail.² No action was taken until 1942, when the foundation of the Farmington Plan, a national attempt to coordinate collection building, was laid.³

Academic Libraries after World War II

The end of World War II marked the beginning of the great expansion of American higher education. New universities were founded, and they needed collections, while existing libraries needed upgrading. The need for librarians to manage this process brought an influx of new talent to our libraries. Several came out of the intelligence branch of the armed forces, such as Robert Taylor (who eventually became dean of the School of Information Studies at Syracuse University, 1972–83) and Fred Kilgour (who founded the Online Computer Library Center OCLC), but many were well-educated soldiers, for whom a quick library degree offered great promise. David Kaser (university librarian at Cornell, 1968–73), John P. McDonald (dean of University of Connecticut Libraries, 1963–87) and Carl Jackson (director of libraries at Pennsylvania State University, 1966–72) come to mind. All started their careers as acquisitions librarians and quickly rose through the ranks to become the new breed of library directors.

At the same time, the talent of several Jewish exiles from Germany and Austria were added to the ranks. Rudolph Hirsch at the University of Pennsylvania and, especially, Felix Reichmann at Cornell greatly influenced the ambitious foreign acquisitions and were able to translate faculty needs into a more cohesive program. The model followed was still the one set by the larger and older American libraries, which were, in turn, heavily influenced by German academic libraries of the nineteenth century. Retrospective purchases were boosted by a large-scale reprinting program started during the war. Acquisitions and serial departments were the place to be. The money was there, and faculty knew it. Dorothy B. Keller, head of the acquisitions department at the University of California at Berkeley in the 1950s and '60s, at one time had a staff of seventy.

The new programs also spawned a group of ambitious, well-organized booksellers in Western Europe who supplied both new and antiquarian books and periodicals. With the Library of Congress leading the way, book dealers developed the capability of blanket orders, based on their national bibliographies. This allowed a more orderly flow of new materials in languages that libraries often were not staffed to handle. The Library of Congress became even more prominent as a pacesetter with the establishment of Public Law 480, National Program for Acquisition and Cataloging, as well as other international cooperative programs between libraries and booksellers.

The need for more international library staff became apparent in the 1950s, when the United States government, under the National Defense Education Act, began to fund faculty and students in newly established university centers for various area programs, notably in Asian, Eastern European, and Latin American studies. Often starting as catalogers with special language expertise, several librarians also became bibliographical specialists, and soon the major libraries had a corps of bibliographers for each of the programs. In these new area programs, faculty involvement was considerable, and many times took place in the form of overseas buying trips. Large amounts of material from all over the world entered United States libraries, often without much selectivity. There was no previous bibliographical model available. This was a new territory with new rules. At this time, faculty participation in collection development for the general library collections was waning, partly because there were few rewards for the amount of work involved, and partly because the new generation of faculty members was often no longer conversant with the bibliography of their fields.

It is not surprising that some library directors were beginning to be concerned about the lack of oversight over these large and expensive programs. Collection development did not fit in the traditional library administrative model. It was not yet recognized as a legitimate professional

occupation. Nominally, collection development was still the domain of the faculty. Technical and public services positions were well established. At Cornell, Felix Reichmann, in recognition of his work, carried both technical services and collection development titles for a while, but that was unique. Some libraries had established the position of university bibliographer as coordinator.

The Emergence of Collection Development in the 1960s and 1970s

Here is where I insert myself into the story. I had started working for Martinus Nijhoff in The Hague in 1958, and was sent out to the United States as their sales representative for new and antiquarian books and periodicals in 1961. I traveled throughout the United States and Canada for four years (four months each year in the fall) and became familiar with library directors, acquisitions librarians, bibliographers, and influential faculty members. When David Kaser, then library director at Vanderbilt University, learned through the grapevine that I was interested in change, he invited me to become the first university bibliographer at the Joint University Library in Nashville. I arrived in 1967 with the assignment to wrest away faculty control of selection and build a more systematic program.

Shortly afterwards, David Kaser succeeded Steve McCarthy as university librarian at Cornell. His first concern was replacing the retiring Felix Reichmann, whose reputation with the faculty remained stellar. I became the lucky choice, and I moved to Ithaca in 1970. Those were challenging days at Cornell, with the presidency discredited and the faculty badly split over the university's response to student unrest. Olin Library was firebombed in my first week of work. The new administration was faced with rebuilding confidence and a shortage of funds. The library expenses, notably those for acquisitions, came under university administration scrutiny. The need for increased accountability became apparent, and Kaser tried to bring more sophisticated management techniques to the organization. I was in need of help.

For several years, the heads of technical services in the larger research libraries had been meeting at American Library Association (ALA) Annual Conferences and Midwinter Meetings to discuss common interests. To my surprise, there were several important collection development issues on their agenda. While I worked well enough with my Cornell technical services colleague Ryburn Ross, I nevertheless felt that I should be at least present. When I voiced my frustration in the ALA corridors to Helen Welch Tuttle, a long-time friend and then associate university librarian for technical services at Princeton, she suggested that I simply convene my own group and take control of the collection development agenda—and so it happened. I sent invitations to the top fifty or so libraries and eagerly awaited

response. About eight gathered at our first meeting at the 1971 ALA Annual Conference. The other universities had no one to send, but we were an eager group in attendance at the first meeting. Word about our agenda quickly spread, and, by the 1972 Midwinter Meeting, there were approximately twenty-five participants, including some library directors.

With strong pressure from Harvard's Gordon Buchanan, the earlier mentioned Farmington Plan became our first concern. It soon became clear that there was no longer interest in the program and that we should recommend that ARL officially declare it no longer relevant. The program had never worked well and was largely superseded by the Library of Congress's blanket order program, which was being replicated by many larger libraries. The old guard at ARL was not happy with the young upstarts, but we did represent the major libraries and had support from our directors. Discussion about the reasons for the demise had the most stimulating and far-reaching impact.⁴ There was agreement that the lack of evaluation tools had led to all the confusion, and that no other cooperative program could and should operate without such tools.

The question was how to address the lack of collection evaluation tools and techniques. Micha Namenwirth from Berkeley suggested that we invite to our next meeting his colleague LeRoy Ortopan, a cataloger at Berkeley who had developed an elaborate shelflist measurement scheme (first used in 1966 at Northwestern and Wisconsin and later at Berkeley) with a standardized breakdown of the major LC classes. His scheme was adopted, and the decision was made to produce a collective edition, including the data of all the participating libraries—the first national shelflist count.⁵ Library automation had already advanced enough to produce it efficiently. Now we had a tool for collection analysis and comparison and a method to monitor growth, albeit with many faults.

Simultaneously, a small group of us, dubbed quickly the collection development “mafia,” had infiltrated and taken over the leadership of the ALA Resources and Technical Services Division's (RTSD; now the Association for Library Collections & Technical Services [ALCTS]) Resources Section Collection Development Committee to work on the rest of the agenda. There we committed ourselves to preparing a series of collection development and evaluation manuals, bringing together the best of our professional knowledge and practice, and organizing a series of ALA programs to introduce the topics to the profession. The culmination of all these efforts was the first collection development preconference in June 1977 in Detroit, sponsored by the Collection Development Committee of the RTSD Resources Section; papers presented at this preconference were published in *Library Resources & Technical Services*.⁶

Meanwhile, at Cornell, pressure continued by the university administration to justify continuing acquisitions budgets. The 1972 dollar devaluation hit very hard everywhere,

and we were showing deficits that could not be addressed without good plans. The first efforts of serial titles cancellations began to take their political toll around the country. Unfortunately and erroneously, the blame was laid on the publishers rather than on the lack of appropriate funding, and the off-and-on, thirty-year war with scientific, technical, and medical publishers has taken an unfortunate toll on the library's credibility. Meanwhile, David Kaser had left to teach in the graduate library school at Indiana University, his home state, and the university was unable to recruit a suitable replacement. Gormly Miller, a senior and respected long-time library staff member was appointed, and he and I tried to develop a strategy to increase library credibility with the university administration, which was simultaneously changing presidents. To give a flavor of the atmosphere at the time: our provost, a physicist and a respected gentleman, declared that in the formula of library efficiency, the number of volumes should be in the denominator. More acquisition funds would lead to more books and subscriptions, and thus a need for more catalogers and, ultimately, more space.

We approached the Mellon Foundation, which had been funding library projects in private universities, and proposed to do a thorough study of the Cornell collection development processes in the hope that the lessons learned would be applicable in other research libraries. We established a project plan and an outside advisory committee, and went to work. At the time, Cornell had made some splendid appointments of young and energetic librarians, and they proved ready for the experience. In what was probably one of the better outcomes, we tried to apply the cumulative knowledge then available in the staff seminar on collection development. The ultimate results were published in two reports. The first report, written by Dan Hazen and myself, was positive and optimistic.⁷ The second report, prepared by Gormly Miller after I left Cornell and the project was complete, had a much more conservative tone.⁸ I had left Cornell and the project for Rutgers by that time. The grant, however, had an unforeseen by-product with unfortunate, long-term implications. I had used the Mellon funds to replace myself in the day-to-day selection process in Olin Library with three part-time bibliographers, all of whom were already on the staff. When I left and the grant was concluded, the salary line was gone as well. It took Cornell a decade before the next assistant director for collection development, Ross Atkinson, was appointed.

Significant Developments with Lasting Impact

Several more important developments took place in the 1970s with considerable consequences for the profession. First was the emergence of collection management (decisions about collection on hand) as a much-needed, additional component of the collection development process. The profession began to take a closer look at what had been

wrought during the times of the great expansion. Space had become a universal as well as a Cornell issue. Unable to convince the university administration to provide for more traditional library space, Cornell designed and built a major storage facility, requiring a process of triage in the stacks, which took a great deal of planning.

Collection management issues also spawned a series of doctoral and other studies, using the techniques of operations research to better predict and respond to user demands. A significant corpus of knowledge was acquired, but, unfortunately, not all the wisdom has filtered down to the operating levels. The issue of copy versus title depth is still not resolved on some campuses. Studies of patron failure in the stacks also were convincing in theory, but have not always been followed up in practice. The sophisticated bibliographical databases and the improved delivery techniques, two of the most important requirements for effective library cooperation, have led to an explosion of interlibrary loan and document delivery programs, greatly improving service to library patrons and decreasing some pressure on local acquisitions. The old adage "build it and they will come" was being proven false in many libraries, where increasingly underused collections and dwindling faculty interest were prevalent. Taking the cues developed in our great public libraries, research libraries have now joined the ranks of library marketers, with an array of educational and informational public programs on their campuses to increase knowledge and use of their collections and services.

One of the bigger collection management issues was the apparent physical decline of the collections, due to use, environmental conditions, and paper acidity. This is not the time to review all the considerations of the preservation wave in the 1970s through the 1990s, funded largely by Congress, after effective lobbying by ARL leadership and historians. The professional knowledge about physical preservation and restoration acquired since that time is deeply impressive, and it is now an integral part of the research library program. Preservation microfilming, however, is another story. Controversial from the beginning, it raised serious issues of physical destruction of original copies, storage and retrieval of microform masters, and coordination among participants of the many projects, none of which have ever been satisfactorily resolved. Microforms, projected as an interim solution when introduced in the 1930s, will be with us for a long time to come.

Perhaps the most controversial question about microfilming was the decision-making process. Who decides which books or periodicals should be filmed and what the selection criteria are? Two schools of thought emerged. The first was the bibliographical faction. During the unprecedented American Imprint Inventory project, directed by McMurtrie between 1938 and 1942, some ten thousand American libraries were canvassed, resulting in more than fifteen million slips with bibliographical information and

location indication.⁹ The statistics proved overwhelmingly that unique copies of American imprints were distributed among hundreds of libraries, rather than in the ten largest research libraries. Adherents to this bibliographical theory, including myself, tried to make the case to those in power, essentially a small group of library directors surrounding Jim Haas, president of the Council for Library Resources in Washington, 1978–91, that in order to achieve the goal of preserving America's bibliographical past, a systematic effort should be undertaken to preserve, year by year, volume by volume, America's cultural heritage, combined with a good evaluation process. The national newspaper project, organized and funded by the National Endowment for the Humanities (NEH), has been based on this concept. It has been very successful in reaching deep into the corners of the country, state by state, region by region, to ferret out unique newspaper files. The fierce criticism by conservationists about the resulting local decisions by libraries to discard or sell their hard copy when film became available, is justified. In retrospect, it is clear that the NEH project should have had a conservation component.

The other school of thought, composed largely of powerful library directors, subscribed to the so-called Great Library theory: Give the money to the largest libraries, let them decide what is best, and all will be taken care of. In the discussions leading up the Farmington Plan, the same debate took place without a firm decision being made. This discussion is taking place today once again as we contemplate the Google and Yahoo! initiatives. The Great Library theorists won the preservation microfilming battle; we will shall see what happens in the digital process. I am sure it will be on this conference's agenda, and I urge you to seriously consider the arguments of bibliographers and conservationists. It may be the profession's last chance to accomplish a comprehensive and systematic conversion project, based on international cooperation, with each country taking responsibility for its own heritage, even if many of their unique copies reside in American libraries.

One of the most significant and exciting developments of the past twenty-five years has been the incorporation of the archival profession and its practices moving into mainstream librarianship. As research libraries became more and more actively interested in collecting source material, the processing techniques used by archivists became a necessity. Once again, there is a Cornell connection. While I was serving as chair of the board of the Research Library Group, Cornell's Tom Hickerson, associate university librarian for information technologies and special collections, and his archival colleagues developed the compatible bibliographical standard that allowed the integration of archival records with those of books and periodicals. It is most rewarding to observe the great impact that these merged files and pro-

grams have had on the research and teaching community as well as on the profession in many of our universities.

Conclusion

Recognizing the rich and diverse talents as well as the accumulated experience and wisdom of the professional collection developers present for this conference, I am confident that the future of our great research library collections is in splendid hands. The dilemmas, the challenges, and the stakes are substantial indeed, and I look forward to your guidance.

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Collection Development in the Age Day of Google

By Mark Sandler

This paper sets out several challenges for libraries and collection development librarians as they seek to remain relevant in a rapidly changing environment. These include changes in ease of information access, increasing interest in unmediated access, ubiquity of similar (even identical collections), and the need to develop unique collections that meet local needs and interests and to develop and promote tools that enhance the use of these collections.

Change is hard to pin down. It can be as jarring as an earthquake: dislocating, disruptive, cataclysmic. More commonly, it is as slow and unexceptional as watching grass grow: glacial, evolutionary, but relentlessly steady. Both kinds of change—sudden and gradual—are natural. What is unnatural is the human predilection, despite all evidence to the contrary, to plan social systems as if they are forever. In the heyday of the Berkeley Free Speech Movement, Mario Savio famously dubbed “an end to history” the bureaucratic worldview that led campus administrators to act as if our systems of higher education had evolved to a point where further fundamental changes would be unexpected and unlikely.¹ Ignoring the precedent of all that has come before, humans too often lay their plans as if the next best thing will be the last thing.

“Sameness” encourages “saneness”—it is an enabling assumption for daily life. We wake up each day blanketed in the comfort of the familiar, assuming that our homes, family relations, cars, offices, and computer desktops are the same as we left them when we drifted off to sleep the previous night. In fact, none of these are likely to be the same, but sane people choose to overlook the differences as inconsequential—not worth the time and energy required to recalibrate our understanding of our surroundings. While this is a normal, natural, and efficient human response in the short term, it can become dysfunctional in the long term, as small changes accumulate into more significant changes that require adaptation or, at the very least, recognition.

Books, for a Change

It is a challenging question as to when, or if, recent changes in our information world have aggregated to such a level that libraries need to become fundamentally different institutions than they were twenty years ago. Sociologists have coined the term “tipping point” to characterize that moment when quantitative or incremental change crosses the line to become qualitative change.² The changes affecting libraries have been driven by incremental technological developments, but technology is always wrapped in a social and economic cocoon that nurtures innovation and gives it license to take root and flourish. More than technology

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per se, the changes in social and cultural values that surround technology are what trigger a fundamental shift in institutions like libraries and education. The ubiquity of the personal computer, the development of the Web, the emergence of Web commerce enabling and responding to consumer desire to access goods and services online, and the hegemony of a digital culture as the defining characteristic of a global generation of young people, are the kinds of fundamental social changes tugging at our libraries. For some, these changes are perceived as a revolution—a shaking of foundations of the nation's libraries. Others see it as business as usual; change is a constant, and librarians have been continually adapting for centuries, sometimes themselves driving significant change.

However, a vocal group of observers—and these are the scary ones—view the contemporary changes in technology and culture as inconsequential; a tide that could be turned by eloquent rhetoric. They encourage librarians to eschew emerging cultural patterns, urging us instead to celebrate and invest in yesterday's technology as the path forward. This atavistic group, some who speak from the rostrum of high office in our professional associations, would allow our libraries to fall out of step with contemporary culture in deference to a nostalgic view of the libraries they remember from their youth. They confuse the joy, excitement, and social importance of learning with one particular manifestation of how learning takes place—reading a printed book. I cannot imagine that persons old enough to be working librarians need to be reminded of the importance of the printed book in world history, no less in their personal histories. I cannot imagine that librarians need to be reminded of the lives that have been changed through interaction with the now aging legacy collections in our care. Surely librarians recognize that print books are still being published (at the rate of a million a year), still being consumed, and still affecting our lives. It would seem a waste of ink and paper to write editorials telling librarians that books are useful—after all, *libre* is the root word for the profession. And yet, our professional trade magazines run these articles like so many Norman Rockwell paintings, paying tribute to an idealized past that never really was.

The discussion of change in libraries should not be about the role of the printed book in cultural history, but about the diversity of learning channels available in the present and going forward. For our libraries to stay relevant, they need to facilitate communication in all its forms. Libraries are not about books; they were, are, and will be about facilitating communication across time and space. Books have been a way to do that historically, but today there are other, often better, ways to accomplish this. Libraries need to become facile at supporting all sorts of media, and they must continue to embrace the new, or face the consequences of losing relevance to the mainstream culture.

Shop Local

Many people reading this paper grew up in an era when most retail trading was local. One could stroll down Main Street America and shop for meat, bread, shoes, clothing, hardware, and pharmaceuticals. Financial services were delivered by a local bank, insurance by a neighborhood agent, and goods by a series of specialized shopkeepers. No one can deny that the predominant means for delivering goods and services in America—retail trade—has changed markedly over the past fifty years. Department stores, discount department stores, outlet malls, mega-malls, mail order establishments, box houses, chain stores, and Internet retailers have drawn shoppers and consumer dollars away from Main Street. Those wishing to deny change can find solace in the undeniable—that Main Street still exists in most American towns and still supports at least some stores, and, against all odds, new stores open on the heels of closures and failures. Small retail operations do persist, but they are largely marginal in terms of overall market share, and represent but a pale reflection of their former prominence.

The decline of local retail outlets is a cautionary tale for America's libraries. The retailers themselves, noting challenges from other kinds of outlets, at first argued—more for their own peace of mind than to convince others—that they would compete and prevail because they knew their customers' needs, could fill them conveniently and in a pleasant atmosphere, and that their customers would be willing to pay a bit more for the knowledgeable service that local retailers provided. They also believed, or at least hoped, that most shoppers would recognize that *less* could be *more*, and that a well-selected inventory is preferable to overwhelming the busy customer with choice. Underlying this view was the belief among tens of thousands of retailers across America that they had better taste than their customers, and a higher knowledge of merchandising, value, and quality. In short, these small retailers believed they knew best what their customers needed, even if the customers themselves might have been expressing other wants and desires.

Why is the walk down memory lane—or Main Street—relevant to today's librarians? Because so many of our library colleagues are putting forth the same kinds of rationalizations that shopkeepers of yore did when challenged by a more competitive retail environment. Many of us want to believe that the local library can withstand the onslaught of such national delivery channels as Google, Amazon, GPO, Elsevier, JSTOR, and a few dozen other large aggregations of content that can be delivered to users in real time, and in the convenience of their homes and offices. These wistful librarians wish to believe that their knowledge of local users—a view not necessarily shared by these same users, needless to say—will trump the convenience and comprehensiveness of national providers. Further, they believe

that users will be frustrated, overwhelmed, and burdened if asked to choose from a wide range of alternatives, so will willingly leave the choosing to a friendly, not to mention professionally trained, intermediary.

Many examples around us today call into question this perception of librarian centrality in the chain of serving up information to users. We have seen in recent years the emerging preference for self-trading over traditional brokerage houses, the willingness of house hunters to search multiple listings on their own, and a preference among most travelers to search for flights themselves rather than leaving it to a travel agent. All of these are time-consuming, and users are undoubtedly clumsy searchers at best, but the feelings of controlling one's own destiny, and the pure pleasure of interacting with the information in one's own time and way, seem to trump arguments for optimizing efficiency through mediation. If Google makes good on its plan to digitize and serve up fifteen million books, it is likely that users will enjoy searching through them for the items they believe they want. Librarians may be right that professionals are more efficient searchers and more discerning judges of the results. Nonetheless, the opinion that matters here is that of the end users, and they seem quite satisfied with their search strategies and the results they retrieve.

Speaking of recommendations, information recommending services likely will grow up all over the Web, and one would think that librarians would be credible players to fill such a role. They will, however, be challenged by a thousand amateurs expressing their own "epinions," and asserting the authority of an academic degree to dominate this space will not be enough. Rather, preeminence will go to those sensitive to the tastes of readers and their preferred manner for receiving information. There are no entitlements in the world today—libraries and librarians have to prove their worth like everyone else.

Collection Development

To get closer to the world I know, consider the status of collection development activities in a research library setting. In years past, great research libraries relied upon a cadre of skilled bibliographers to bring together in a single locale large quantities of scholarship from all over the world. These bibliographers would profess to know not only the international book trade, but also the needs of local users whom they were charged to serve. This latter contention was subject to question, given persistent findings that so much of our research collections went unused.³ Nonetheless, there were considerations other than use for building large local collections, so the practice persisted, not only tolerating redundancy of information resources but redundancy of the staff needed to acquire them.

Fast-forward now to a world where a single digital copy of an article or book can be delivered to multiple users, anytime, anywhere. This is a world in which publishers can deliver in real time the books or articles as needed by users—electronically or in print—rather than libraries or retail booksellers stockpiling the content on consignment; a world in which a user can locate and buy a print copy of almost any known book—new or used—and expect delivery the next day; a world in which a single catalog of books (and non-books) can be searched at the word level, leading users to library holdings and purchase opportunities. This is the world today, or the world that we know to be close at hand. It is potentially a world of disintermediation for libraries of all types, but especially for those research libraries that have historically defined themselves in terms of the extent of holdings rather than the relevance of their services.

The Web world is a world of networks and communities—a world that supports cooperation through the speed of communication and the transparency of access. If a network (regional or international) of libraries agrees to make a resource available, where it is actually housed does not matter. Location is transparent to the user and, in such an environment, both redundancy and hoarding are irrational. Yes, there are questions of long-term archiving and the trust required to rely upon others in perpetuity. And yes, certain users have specialized needs that should be locally supported. Recognizing all of the arguments for being wary about relying upon others to serve up resources of enduring value, it would still be judged irresponsible if the library community were unable to muster the will and means to cooperate in an environment so conducive to collaboration. In fact, not only could and should research libraries be pursuing an agenda of cooperation, they should be making their resources accessible to the world with little or no expectation of *quid pro quo*. Unlike the physical world of borrowing and lending articles and books, sharing electronic files involves no discernible cost, no loss of local access, and no degradation of local service.

Do not get me wrong here. I believe that the local library—or at least some local libraries—will survive and thrive in the future, but they will only do so by remaining relevant and continually revamping their roles and priorities. Local collections, and the infrastructure to build them, will be much less important going forward. That is not to say that local collection development will not occur, but it is to say that the core resources that serve 80 percent or more of users will be selected and served up centrally; with local efforts focused on truly local needs, such as geographically focused collections (for example, Wisconsin circuses), institutionally branded collection strengths (such as Africana at Northwestern), collections that address specific program needs in an institution or community (such as computational linguistics at MIT), or demographically relevant collections

reflecting the age or language distribution among a local user community. It is also the case—or I hope will be the case—that libraries will be more attentive to their special collections, aggressively seeking out manuscript and archival resources in areas relevant to their specialized users.

Special collecting in most academic and research libraries has been left to a relatively small group of rare books librarians and archivists, while much larger cadres of subject specialists build collections of routine material. Going forward, we need to begin integrating that larger group of subject specialist in shaping our special collections—those collections including published print, manuscripts, popular ephemera, images, and electronic resources. In particular, our subject specialists should be helping to decide which datasets should be incorporated into an institution's repository for universal access and archiving in perpetuity. Likewise, they should be identifying and acquiring the papers of significant contributors to a discipline, working subsequently to organize, make accessible, and preserve such collections, and our subject specialists should be trawling the Web to identify sites of significance or interest that should be harvested and preserved for access and analysis by future generations of scholars.

In addition to subject specialists participating in building special collections, we expect that their roles will be more focused on customizing and marketing collections held elsewhere than building generic onsite collections. Subject specialists should become less attached to the producers of content and more attuned to the needs of those who consume it. Rather than knowing everything there is to know about specific publishers, distributors, or national bibliographies, our specialists need to learn all they can about our users. This would include a deep knowledge of their content needs and how this content is being used. Selectors need to determine which works should be enhanced (for example, better images, edited searchable text, structural encoding, or rich tagging of elements needed by geographers and linguists). Attention should also be paid to the kinds of tools and interfaces required by specialists for their teaching and research, and this too is very likely to vary from campus to campus, even if the target content (for example, Shakespeare, public laws, civil war diaries) is the same.

Finally, different scholars mix and match content in different ways, and our specialists should be helping to build portals and virtual collections that reflect these widely varying understandings of a subject corpus. Presently we leave this to scholars themselves to assemble, but the act of capturing and reflecting these "scholar's bookshelves" could become an important expression of an institution's research legacy.

So, while I believe we are moving toward one or several universal libraries, I still see hundreds of great research libraries continuing to flourish by redeploying their subject specialists to cater much more closely the needs of local

scholars. This is no longer a world of libraries serving as high inventory retailers—Wal-Mart or Sam's Club—standing ready to serve any and all comers. Rather, the day is approaching of the library as elegant boutique, with a small but committed clientele. That clientele is committed because it is pampered and libraries cater to it. It is the cosmetic counter of the campus, where somebody cares if your skin is oily or your pores are larger than average.

At top-tier universities, faculty members are national and international engines of creativity and discovery. They cure diseases, create things of beauty, generate economic value, and advance the social good by recognizing a higher understanding of the forces that shape our lives. Allying with this mission is to change the world. In the aggregate and over time, this is the stuff of human progress, and that is where libraries of all types—academic, school, public, and special—need to be investing their money, their time, and the energy of their best staff.

Concluding Thoughts

Speaking of investment, libraries need to be investing more of their budgets in cooperative and collaborative efforts that produce ever-greater value for our users. We should be investing in shared print storage facilities, solutions to archiving electronic resources, shared server farms to manage large-scale datasets, 24/7 chat reference services, mass digitization of our retrospective collections, and myriad other activities that no longer depend on space or locale. Nobody argues against the importance of libraries, but there are lots of important institutions in our society and limited resources to cover the costs. Vision is worthwhile, but affordable vision—achievable vision—is priceless. The future vitality of libraries is dependent on their ability to first, design desirable services for users; and second, to deliver those services in a cost effective manner. Cost effectiveness will require eliminating operational redundancies, and here we have a tremendous advantage over the private sector. Libraries can cooperate, share, and support each other in ways unavailable to commercial firms. That is a great strength made possible by digital delivery of information. We are no longer standalone operations that need to do it all; we can focus on doing some things well and rely on others to take care of the rest. The best library in the country will be the library that can satisfy user needs by calling upon the resources of all the rest.

America's libraries and librarians are poised to embark on a wild ride over these next few years. Our catalogs will change dramatically, our information services will be delivered off-site and online, and our selection will be done by users. Such profound changes can be unsettling, but we should be comforted by the knowledge that our libraries will

reach more users than ever before, serve them better than at any time in our past, and do so at a lower unit cost than has been possible under current arrangements. Change is sometimes progress, and I believe that is the case for the work presently being done in and around libraries. While not quite the source of an earthquake, libraries and librarians are well placed to rock the world. With so many resources available to be delivered quickly and conveniently, who can doubt that our profession will successfully adapt to the new opportunities presented by economic, technological, and cultural change?

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Six Key Challenges for the Future of Collection Development

Introduction for the Janus Breakout Sessions

By Ross Atkinson

This paper presents an overview of challenges facing collection development. It considers the evolving nature of collections and the main players in the information exchange process as well as outlines six key challenges intended to inform discussions at the Janus Conference, held in October 2005. These challenges can serve as catalyst for further discussion in the profession.

The breakout sessions scheduled for this afternoon's Janus Conference will have two purposes. First, they should identify key challenges that face collection development as it moves ahead into the rapidly changing information environment. Second, the groups should then develop and propose practicable actions that can meet those challenges. Research libraries are, to be sure, reviewing and adjusting collection development goals and operations continually—but such restless re-envisioning remains largely fragmented among different institutions. We need now, therefore, to consider whether such fundamental challenges can be effectively confronted using such fragmentary means—or whether we need finally to begin organizing ourselves more systematically in collection development, to confront such challenges in concert.

In order to assist and encourage our discussions this afternoon, I will present a brief and subjective overview of a range of key challenges facing collection development. I will first consider the evolving nature of collections, and, in so doing, I will confirm that the concept of the collection in the new environment remains valid and crucial to scholarship and services. I will then talk briefly about the main players in the information exchange process. Finally, I will outline six key challenges that the conference planning committee thought might serve as a spring board for this afternoon's discussions.

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This paper was presented at the Janus Conference on "Research Library Collections: Managing the Shifting Ground Between Writers and Readers," a forum devoted to re-envisioning collection development in research libraries, held at Cornell University October 9–11, 2005.

Collection Development Challenges: A Very Brief Overview

Let us begin at the most rudimentary level by asking quite simply why we have built collections of information objects, and whether collections should continue to be built in the new environment. While there are obviously many reasons for creating and maintaining sets of information objects, we can perhaps reduce these most easily to three.

Political and Economic: Institutional Capital

Collections attract scholars, graduate students, government support, and donor funding—and add prestige to the institution. This rationale for collection building—the collection as institutional capital—is a primary motivation, even though it is seldom specifically discussed. One point we must bear in mind with respect to this rationale, however, is that it entails or implies the existence of a separate collection at each institution that can, in effect, compete with all others. The new environment into which we are now moving, on the other hand, is likely to be increasingly characterized by a much more unified collection to which all users would have access. Indeed, what perhaps so fascinates us and unnerves us about open access is that it might serve as a first, decisive step in the direction of a more unified, less institutionally based collection. While there is no question whatsoever that open access represents a supremely valuable trend ideologically—perhaps the ultimate aim of all collection services—libraries continue to wrestle with its implementation and implications, including its effect on institutional identity. However, such a concern about identity, if I am correct in sensing it, is a red herring—because of what we might call the “axiom of non-equivalence.” By this I mean the trivially simple fact that individual libraries are not the same, nor will they ever be. Each has vastly different resources—not only financial, but also human and creative resources, including different visions and values. The fact is, therefore, that all scholarly publishing could convert to open access tomorrow—every scholarly publication could be made openly accessible—and still the accessibility, the collection service, and the ability of the user to find, understand, use, and apply the individual object would vary enormously from one institution to the other. Any morbid fear we might harbor, therefore, of becoming mirror images of each other as we move toward a more unified collection is unfounded, and we cannot allow it to deter us from moving in that direction, if we decide that direction is in the best interest of our user communities.

Material: Preservation

The collection of materials in order to ensure their long-term access remains the primary challenge and responsibility of research libraries, regardless of changes in technology or ideology. Preservation has been the principal function of libraries since antiquity—and the library as “memory institution” surely remains the one service that justifies the continued existence of research libraries from the standpoint of society at large.¹ Of the several difficult preservation challenges we now face, we can identify two of them as particularly critical. The first of these is technical. Despite significant research and collaborative experimentation, digital preservation technology has not proceeded nearly as

quickly as we had expected, and a range of technical issues (especially with respect to technological obsolescence) remain to be confronted.² The second major challenge is political-economic and stems from the fact that libraries no longer have direct access to many of the materials they need to preserve. Such materials no longer reside in libraries, but are rather maintained exclusively in vendor databases around the world. While we have made every effort to compensate for this condition through our licenses, such legal safeguards remain clearly inadequate. The greatest single failure of research libraries in the past decade has been to allow this situation to evolve. We must now take whatever steps are necessary to reverse this condition and to resume full responsibility for preserving those materials upon which scholarship will rely in future.

Contextual: Privileging

A third fundamental purpose of building a collection is to privilege particular objects as being more useful or reliable than others. A collection is always an *intermediate sort*: a sorting out of components of the universe to produce a subset that stands between the universe and the user. Our views about this responsibility have been, to be sure, somewhat conflicted. While such privileging is professionally justifiable, it does raise some very real ideological questions. What right do libraries ultimately have to steer users toward certain sources? Would it not be preferable simply to try to provide reasonable access to the universe as a whole, and to allow users to make up their own minds? It is in part a variation on the old and unanswerable question: Are we enhancing access to objects that are greatly needed? Or are we making objects greatly needed by enhancing access to them? In recent years, however, as services have moved increasingly online, my sense is that the privileging function has become far less problematic or questionable. The reason is that the universe of information has become so much more complex, its contents so much more varied with respect to quality or reliability or utility, that the user's need for some kind of intermediate sort, to designate or privilege subsets of materials that are more immediately authoritative and useful, is much greater and more warranted than was ever the case in the traditional environment.

The question is no longer whether such a sorting is justified—it clearly is. The question is rather how in this new environment such privileging can be effected. Privileging was easy under traditional circumstances. It was done by making an object available in a relatively short period of time—the amount of time the user needs to go to the library—as opposed to the far longer time needed to access a nonprivileged object through interlibrary loan. Privileging means to make the object more useful and more used by making it more available. But how is such privileging to

be effected when both the universe and the collection are available in five seconds? Or, even more to the point, how is privileging possible when the universe is accessible in five seconds, and the collection is available in ninety seconds—because the doorway to the collection, the catalog, requires more time to use than a universal search engine? It is now as if everything has been reversed: the universe is in fact now being privileged at the expense of the collection.

There is no rapid solution to this condition. If privileging is to remain an essential function of collections, then collection development and technical services must redefine and re-envision collection access (assuming the catalog is indeed to remain the collection gateway); at the same time, collection development must collaborate more effectively with colleagues in public services on instruction. Although we may sometimes feel that instruction is a cop-out (in other words, good services should be self-evident and immediately obvious to the user), we need instruction services to teach users (and I do not mean only students) the difference between the universe and the collection, what the collection is, and how to use it. This will mean, of course, that we must know ourselves what the collection is—which will entail further work defining the collection in the new environment. For my part, I still look on the collection as an intermediate sort, regardless of the shift to a digital format. If the user wants to study a topic, the user should first study what is in the collection (digital and print). That content in the collection is by definition reliable and of high quality. On the basis of what has been learned from the collection, the user can then safely venture forth into the universe, evaluating and applying its content.

Formality

How else might we briefly approach further key challenges facing collection development? One direct approach is simply to use the abstract concept of formality in its various connotations. First, we have the question *physical format*. We need a clearer sense of the use and purpose of print artifacts, as Mark Dimunation reminded us this morning: information resides not only in intellectual content, but also in physical content.³ The more we move into the kind of world described by Mark Sandler, with increasing (but certainly not exclusive) emphasis on mass digitization, the more important it will be to have coordinated criteria and standards for selecting and maintaining physical artifacts.⁴

We face a similar challenge, however, with respect to the digital object; for it, as the print object (only more so), is not one thing but many. It is a bit stream, to be sure, but on top of that is also functionality, links, a look and feel that contains significant information. Maintaining that formal element, on top of the bucket of bits, may be very difficult

to do, barring some major advances in technology. The overwhelming chances are, therefore, that we are likely to lose large quantities of that information. Have those of us in collection development grasped the implications of this likelihood? What will be the effects of such loss on the quality and utility of the collection in the new environment? We have not yet created the criteria to identify those rare (and costly) instances when we want to try to maintain the whole database, including its formal components. As we move now into a much looser collection environment, we must not only accept the reality that we are going to lose much more than we have in the past, but also that we are going to need to decide together much more effectively what should be retained.

In further considering the issue of form, we must also bear in mind the enormous pressures of *format hybridity*. If we were meeting five years ago, we would all be complaining about how we are now expected to build two collections at once, a digital and a traditional one—with insufficient resources to build even one. But one hears (or at least I perceive) far less of such complaining about this today, and I fear this is because we have become so good at building the hybrid collection that we have forgotten what a huge imposition it is for us, as well as an impediment for our users. We should not be satisfied simply to stand by and allow the transition to the digital information environment to move along at its own pace. We must do what we can to accelerate it—both retrospectively through mass digitization, but also prospectively by working more effectively with publishers who continue to insist on publishing exclusively in print form.

We need finally to distinguish between what we might call *formal publication* and *informal publication*. Formal publications are the kind of materials we purchased for the traditional library—publications, in various formats, that have gone through the standard publishing process. They have been edited and exhibit imprints; if they are essays, they usually appear as articles within published journals. Today, however, we now acquire (provide access to) large numbers of informal publications, mostly appearing online, that have not been subject to such standard publishing procedures and are playing an increasingly significant role in scholarly publication. Needless to say, there are many issues to be considered with respect to adding these informal materials to research collections. I myself do not think that developing criteria for selection of such materials is a key challenge at this time. I believe libraries will apply the criteria they have traditionally used for collection building, and then, as we gradually come to understand how these new kinds of publications work and are used, selection criteria will be adjusted. The primary challenge from my perspective has to do rather with the fact that the collection as a privileging mechanism remains a very blunt instrument. This has always been the case, of course, even in the tradi-

tional collection. An item is either in the collection, in which case it is privileged and defined as useful, or it is not in the collection, in which case it is defined as less useful and is allowed (in the traditional environment) to be more difficult to access. We have never had, however, any real ability to distinguish the relative value or utility of individual items *within* the collection. If this was indeed a problem in the traditional collection, it will become even more of an issue in a collection to which we are beginning to add informal publications. We must begin to work among ourselves, and with faculty and others, to gauge the relative value of different items in the collection—and to produce the metadata that will convey the results of those judgments to our users.

Notification

I want to draw one further basic distinction about information objects, which we make often, although we have no standard terms. Let us say that the box marked phenomena in figure 1 contains everything in the world, in the sense of everything that presents itself to our senses and our minds. Scholars observe and study and measure these phenomena, and draw conclusions about them. Scholars then produce information objects in order to notify (primarily) other scholars of those conclusions—and we can call these objects, as I have previously, notification sources.⁵

Although notification sources can, of course, be treated as phenomena that can result in further notification sources about the original notification sources, and so on, this is not relevant for our purposes. What is relevant is rather that some (a relatively small subset of) phenomena are information objects—historical works, philosophical and legal works, statistics, data sets, telemetry, and software. We need always to bear in mind that information objects as notification sources and information objects as phenomena are entirely different things: they are created differently, they are used differently, and we build collections of them differently (or we should). There is a major difference between the library

as speaker phone (what is going on in my subject? i.e., notification) and the library as gold mine (what objects can I find to study in order to produce new notification sources?). We must be careful, therefore, to distinguish them, and to apply different criteria to their selection. Our present obsession with utility, our sense that we should restrict our acquisitions to items that are, for the most part, heavily used is because we have become understandably so focused upon notification. While utility is indeed a key criterion for selecting notification sources, other factors must be taken into account in building collections of objects as phenomena.

A very simple model of the universe therefore, might appear as shown in figure 2. Where do we see the real pressure in collection development at this time? Clearly, it is in the area of formal notification sources (although I expect that informal notification will become increasingly significant for some subject areas). This is admittedly to say little more than the obvious: that our major pressures are centered in formally published journals and monographs. I mention this, however, in order to remind us of two further points. First, in identifying key challenges, we need not feel obliged to confront the whole universe of publication. We can develop models of the universe in such a way (like this simple example) that allow us to concentrate on one part of it. Second, I want to be sure we bear in mind throughout our planning that, despite the obvious pressures we face, there is more to the information universe than notification sources: other aspects of that universe hold potentially significant challenges for us as well.

Players

Before moving ahead to discuss examples of key challenges, I want to talk briefly about the players in the information exchange process. I apologize for using the same linear model that we always use (figure 3), but I think we have become so used to it that it is best to leave it alone.

The information object moves from left to right. We begin always with writers and readers. Very few people read

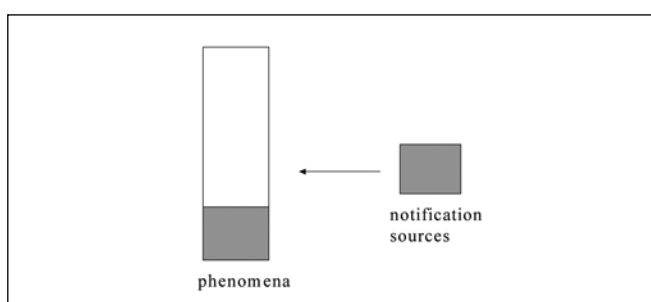


Figure 1. Relationship of notification sources to information phenomena

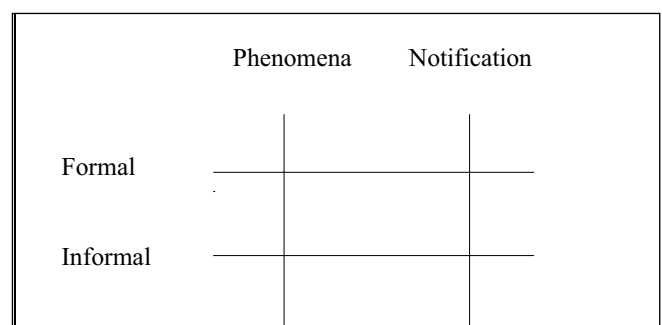


Figure 2. Universe of publications

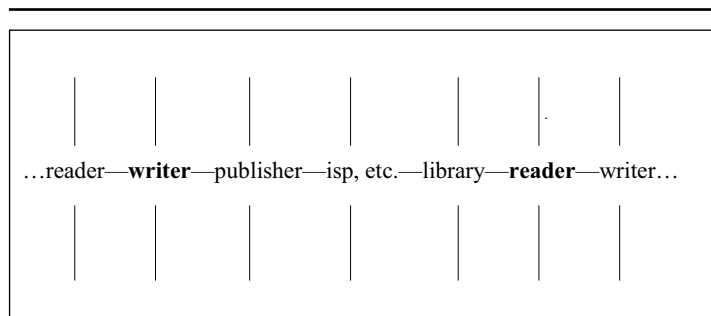


Figure 3. Players in the information exchange process

in the research library context except to write, even if it is only a test paper. If the writing is a publication, the writer creates the object, which is then moved through a series of intermediaries (many more than are included in this diagram) and finally arrives at the reader—who then uses the object to create a new one, so that the process begins again.

Readers and writers are primary: they are irreducible and essential. Intermediaries, on the other hand, are secondary. This is not to say that intermediation is secondary (there is no way to move information from a writer to a reader without some form of intermediation), but rather that intermediaries effecting such intermediation are secondary, in the sense that different intermediaries can and should be used for different purposes and motives. The search for the best and most economical intermediaries is ongoing.

Heidegger says the world consists of equipment (*das Zeug*)—things you do things with.⁶ The information object is indeed equipment, but it is equipment used for a different purpose by each player on the horizontal line. This is a fundamental source of tension in the whole information exchange process, and can lead to a sense of irrationality on the part of some players. Every one of us in this room, for example, could easily design a more rational method of moving scholarly information from writers to readers than the often arcane and convoluted conventions that now serve that purpose. Why so many publishers? Why so many journals? The obvious problem is, however, that what seems wholly irrational to one player is entirely rational to others, because each player necessarily views the purpose of object differently.

We speak often and rightly of a crisis in scholarly communication. That crisis is not a matter of egregiously priced science journals; as disastrous as such excessive pricing is, it is really only a symptom of the so-called crisis. Nor is the crisis simply a result of the fact that each player on the horizontal line is trying to use the information object for a different purpose—for that has always been the case, probably back to antiquity. No, the crisis is rather a result of the fact that there is now a level of technology available to each player on the line such that each player can assert its will and compete with other players much more effectively. What any player on the horizontal line can do is, therefore,

now heavily contingent upon what other players can and want to do.

There are, of course, many authors, publishers, libraries, and readers. We can conceive of them as vertical lines in this model—others who are in effect in the same business—and their presence leads to a concomitant vertical tension and vertical contingency. This means that any information service must always be looking, Janus-like, in two directions: at other intermediaries on the horizontal line, but also at the other players in the same business along the vertical line.

Jean-Claude Guéron, in his paper this morning, mentioned the *virtuosi*, seventeenth-century scholars who engaged in scholarly communication primarily by means of correspondence.⁷ Eventually that correspondence was printed by societies, and that led, as we know, to scholarly journals. I have always thought it would be an excellent idea for scholars to return to correspondence, always assuming, of course, that libraries would store and index it. It would make things so much simpler, and we certainly now have the technology to do it very effectively. Why will this not happen? Because the nature and objectives of the scholar have changed. In the seventeenth and eighteenth centuries (with some major exceptions, of course) many scholars were independent, often independently wealthy, amateurs, in the most wonderful sense of the word. But now we live in the age of the professional scholar, a formidable concept that we do not always take sufficiently into account. That professionalization of scholarship means, among other things, that when such a scholar produces a book or article, that item is unavoidably a commodity, in the sense that the scholar must earn a living—be compensated directly or indirectly—from that publication.

Everyone in the scholarly communication system, everyone on the horizontal and vertical lines, is now a professional. Each player has a commodity to sell (a service, a product) from which that player makes a living, directly or indirectly. Each player, in other words, tries to create a product or service that is more competitive or effective than other products and services produced by other competitors on the vertical line. For authors, as we know so well, such competitiveness is calculated in such terms as publisher reputation and impact factors. But publishers also are obviously competing among themselves, as are libraries. What is perhaps most different about libraries, however, is that they have some difficulty acknowledging and dealing with that competition. They may even pretend sometimes that no such competition takes place. They focus instead with intensity on the horizontal line (publishers, the Evil Empire, vendor effectiveness), perhaps in order to avoid taking the vertical line into account. This makes little sense and impairs services. Competition among research libraries is simply one more condition for libraries to manage. As long as those competitive conditions are ignored, however, they

will remain unquestionably one of the main impediments to building effective relationships among research libraries.

Speaking personally, what scares me about the brilliant, trailblazing, revolutionary arrangement the Google 5, and especially Michigan, have made with Google, is not the effect of that arrangement on the horizontal line. Such a service, if it can be effected, can indeed only benefit the movement of scholarly information from writer to reader. What scares me is rather the effect of the arrangement on the vertical line—on research libraries' relationships with each other. I am frankly frightened that I will not be able to provide users at Cornell with a level of collection service that will be competitive with the collection service that Michigan will be able to provide its users, once its entire print collection is in digital form. And I think many research libraries are concerned about this—although, again, we are loath to discuss it. What I hear discussed are mostly horizontal issues—questions about preservation or whether it is wise to involve another large, for-profit vendor in the scholarly information process. Learning how to communicate more effectively about what really matters to us, therefore, may well be the most serious challenge we face.

Six Key Challenges for Collection Development

The conference planning committee has identified six key challenges that it believes are significant and that we want to recommend as a place to start our breakout discussions; see figure 4. We do not claim these are the most important challenges, but we do feel that many of the essential issues presently facing collection development can be grouped within them. We will divide these six challenges into three broad categories: hybridity, notification sources, and configuration. Each category is resolved into two challenges.

Hybridity: Recon and Procon

First we must consider the category of hybridity. Within that category, we must certainly focus on Recon (full-text, retrospective conversion). It is time—past time—to begin coordinating Recon activity in research libraries nationally and internationally. We have all been somewhat mesmerized by Google Print—as so many rabbits caught in the headlights have been. We need now to rouse ourselves and to begin to discuss and coordinate other Recon beyond (and in coordination with) the Google project. This can only be done at the international level. We should not shy away from

suggesting closer collaboration with the European i2010 project.⁸ We must also move to create more effective methods for working with developing countries that cannot afford to digitize many of their own materials.

The second key challenge under the category of hybridity is Procon (prospective conversion) in the sense that we need to accelerate the transition to digital publishing by working more closely with publishers that have not yet fully made that transition. We must send a clear message to publishers that we want digital now. We cannot simply wait until they are ready. I fear, in fact, there are some university presses that are never going to be ready; and that they are being encouraged in their unreadiness by some humanities disciplines. That unwillingness to move to digital publishing will ultimately impair scholarship in those disciplines.

Notification Sources: Core Definition and Publisher Relations

Our second category is that of notification sources. We find under that category our third key challenge of core definition. By this I mean the collective definition by research libraries of the titles that make up the core of each subject. The net result would be that research libraries agree to collect the same core materials, and then to divide responsibility for collecting different advanced materials. We have been concerned for many years about building the same homogeneous collections, but the fact is we do need to build the same collections of core materials. Scholars not reading the same core materials have no basis for communication, but they must also, of course, be able to read different advanced materials. We need finally to begin dividing responsibilities among ourselves for the selection of such advanced materials; that is impossible, however, until we define the line between the core and the periphery (advanced materials), which is something we have never managed to do. Core definition will also respond to a concern voiced by Mark Sandler this morning, namely that we need to avoid the time lost by so many selectors at so many institutions reviewing the same core approval books and making minor profile adjustments.⁹ Let us define the core collectively and then devote the precious time of our selectors to selecting (cooperatively) advanced materials.

	Vertical	Horizontal
Hybridity	Recon	Procon
Notification	Core definition	Publisher relations
Configuration	Archiving	Alternate channels of scholarly communication

Figure 4. Key challenges for collection development

A fourth key challenge to collection development, which we can also locate under the category of notification sources, is to work collectively in negotiations with publishers. Libraries need to consider as a group options for purchase, going in some cases so far as to agree collectively not to purchase certain publications, because these publications do not conform to standards libraries have set. If aspects of such collective action are in fact illegal, then let us confirm that by pushing the envelope—always bearing in mind that we have all been carefully, judiciously taught by our university counsels to be intimidated by anything relating to legality. We also should consider that in collection development we have occasionally used legality as a convenient excuse to avoid working together. It is time to find out, by taking initial action, what is illegal and what is not. If certain of such collective actions are illegal, libraries must determine whether options are available to work around them. We are being divided and conquered by some publishers. This is because there is no library market: there are only individual libraries or, at best, discrete and isolated consortia. The fourth key challenge facing collection development is therefore to create a library market and to stipulate, as a first negotiating step, the conditions under which selling to that market will be acceptable.

Configuration: Archiving and Alternative Channels of Scholarly Communication

We turn finally to third category of configuration, by which I mean something like the old concept of collection management: the storage and exchange of information objects to which we already now provide access. Within this category we locate our fifth challenge for collection development—the enormous one of archiving. This challenge must be approached in two parts, print and digital. We will require decades, generations, to move our paper holdings into digital form. In the meantime, maintaining large warehouses of print materials will become ever more costly. It is essential, therefore, that research libraries divide among themselves responsibilities for archiving low-use print materials. With respect to digital information, the most serious challenge universities and their research libraries face is how to reappropriate the responsibility for preserving key scholarly objects that now are maintained primarily or exclusively on the servers of publishers and other vendors throughout the world. Technical, economic, and even political impediments can jeopardize continued access to such objects, despite the best intentions and commitments of publishers and vendors. It is essential, therefore, that research libraries reassume full responsibility for archiving such scholarly materials for the long term.

The category of configuration leads also to our sixth and final challenge, alternative channels of scholarly communication, which Jean-Claude Guéron addressed so eloquently earlier.¹⁰ There are, indeed, serious irrationalities in

the scholarly communication system, irrationalities not only from our particular perspective in research libraries, but also increasingly sensed and acknowledged by scholarly writers and readers. There are much more effective methods to move scholarly information from writers to readers than are currently being applied, and we need now to begin working with scholars and other key players to put those other, more effective methods in place as alternatives or supplements to traditional scholarly publishing.

We should, in summary, distinguish between those challenges that collection development can confront and overcome through close collaboration (we can call these the vertical challenges) from those challenges requiring more effective negotiation with other players (horizontal challenges).

We need to confront all of these (or similar) challenges—but if we in research library collection development cannot come to terms with the vertical challenges, which entail working more closely with each other, we must acknowledge that there is no point in taking action on the horizontal challenges, because the collective work needed for the vertical challenges is a prerequisite for confronting the horizontal ones.

Conclusion

If these six challenges are even indicative of what we are facing in collection development (and they may not be—we may decide in the breakout sessions that we are facing entirely different issues), then one thing is certain. None of these challenges can be met by research libraries working independently. They can only be confronted collectively. If successful work on these challenges should indeed form a primary focus of the future of collection development, then it is the case that collection development has gone as far as it can go by operating as a set of unilateral city states. Collection services will either move forward as a group, or they will remain where they are. We should be very careful, however, not to underestimate the difficulty of working more closely together. If such true collaboration were easy, or if it were merely hard, we would have initiated it long ago. Effective collaboration is extraordinarily difficult for many reasons. Mark Sandler showed us this morning a slide listing about ten reasons we have articulated for not working more closely together.¹¹ There are obviously many such reasons—but let me mention in conclusion just one. If you decide to create an outstanding collection, then you must hire an outstanding collection development officer and a number of energetic and highly knowledgeable bibliographers. In order to provide excellent services and to meet professional and career goals, in order to put that collection and library on the map, in order to provide national leadership, that collection development officer and those bibliographers will create, given the necessary resources, an outstanding

collection. But bear in mind: the collection is not the end. It is a means to the end, and that end is to put the collection on the map and to provide national leadership. But so what? As long as you end up with an outstanding collection, what difference does it make? The system works very effectively in nearly all instances. It is only in very few cases that this ends-and-means dichotomy can bring us into difficulties. One of those rare instances is cooperative collection development. Cooperation does not, for the most part, put a collection or library on the map. Cooperation is, in fact, viewed by research libraries as a form of following, and following is certainly not something that is rewarded.

Why then, we might ask, has so much been written about cooperative collection development? Why is it so often discussed, if we do not reward it? We must be honest. In the same way that a scholar, a scientist, can publish a series of articles in high-impact journals and receive tenure for those publications, even though no one ever reads them, a librarian can write and speak about cooperation and receive all manner of credits and rewards, even though no cooperation ever results. Why? Because writing and speaking about cooperation are viewed as forms of leadership, while the act of cooperating is not. That is why there is so much discussion of cooperation, and so little of it.

How then could such cooperation be brought about? I can say only how I know it will not happen. It will not happen by someone standing up and presenting a lot of PowerPoint slides that contain graphs and charts and dazzlingly innovative cooperative models. That would simply restart the same futile process all over again. No, such cooperation can only be accomplished by research library collection development coalescing and operating as a group. And that will entail, to my mind, nothing less than a transvaluation or revaluation of some (not all) values, such that it comes to be understood, accepted, and acknowledged that, under certain circumstances in collection development, the highest form of leadership or distinction is to relinquish some leadership, to relinquish some distinctiveness. It will entail the creation of a culture in collection development of collective leadership to displace, in certain situations, the individual or institutional leadership that so characterizes research library culture at the present time.

As I said, however, this can only be achieved by the leadership of (at least initially) research library collection development coming together to accomplish it—and the leadership of research library collection development is, to a very great extent, in this room now. If we are going to do this, now is an opportunity—this time, this place, these conditions. Time passes swiftly by, and we may well not have such an opportunity again. If we cannot begin here and now, then perhaps we cannot begin at all.

And, indeed, perhaps we cannot. If that is the case, then we at least have made our best effort, and the rich legacy of collection development, that Henk Edelman described

in his very informative paper last night, will likely not be passed on by us to our successors.¹² Collection development will become less relevant in research libraries, and the intermediate sort, so essential in an increasingly online environment, will either not be built at all, or it will be built by some other agency or institution than the research library.

But if, on the other hand, we can do this—if we can take initial steps toward collective action in confronting the key challenges facing collection development—then collection development will continue to thrive and succeed in the new environment, and will ensure, for its part, that the research library will be even more of a cornerstone of scholarship and advanced learning in the new academy—even more than the traditional library was able to be in the old academy. We should aim, I think—we must aim—for nothing less than that.

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Anticipating the Use of Hebrew Script in the LC/NACO Authority File

By Heidi Lerner

The North American library community is looking at ways to enhance authority records with nonroman scripts. The Library of Congress Name Authority Cooperative Program (NACO) Authority File (LC/NAF) is limited to Latin script. This paper looks ahead to the use of other scripts in LC/NAF. The author examines the options for using Hebrew script in MARC 21 authority records, and considers the prospects for cooperative authority work between American and Israeli libraries.

Authority control is time-consuming and labor-intensive, but is a crucial aspect of bibliographic control. National and international standards for machine-readable cataloging (MARC) permit nonroman scripts to be used in authority records. The creation of multiscript name authority records for the Library of Congress Name Authority Cooperative Program (NACO) Authority File (LC/NAF) by catalogers at the Library of Congress (LC) and NACO participants has been deferred until all LC/NAF's partner sites support the same scripts. The principles and guidelines that determine when and what kind of nonroman script headings or references to add to name authority records (NARs) remain unresolved.

This paper introduces the background and use of nonroman scripts in MARC and the current practices for providing Hebrew script access points (personal names, corporate body names, and uniform titles) in bibliographic records in the Research Libraries Group (RLG) Union catalog. The author looks ahead to when Hebrew and other nonroman scripts can be used in NARs that are contributed to LC/NAF. The options for using Hebrew script in MARC 21 authority records are examined. The prospects for the creation of a Hebrew authority file and its possible link to LC/NAF and cooperative authority work between American libraries and libraries in Israel are considered.

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Background

MARC Formats

The MARC format became available for bibliographic records in 1968.¹ The North American library community also has used the MARC format as the standard for organizing authority information up to the present. Institutions share and acquire this information, thus avoiding duplication of effort and creating records that are predictable and reliable.

LC issued a preliminary edition of a MARC format for authorities in 1976.² *Authorities: A MARC Format*, 1st ed. followed in 1981.³ The *USMARC Format for Authority Data* superseded the first edition in 1987.⁴ MARC 21, the most up-to-date version of the MARC formats, appeared in 1999, following the harmoni-

zation of the Canadian Marc (CAN/MARC) and USMARC formats.⁵ The *MARC 21 Format for Authority Data* replicates features of the *MARC 21 Format for Bibliographic Data* that are used for nonroman script data in bibliographic records.⁶

UNIMARC, a set of formats for machine-readable data published by the International Federation of Library Associations and Institutions (IFLA), includes a format for authority records. More than one established heading in different scripts may reside in a single record, or they may exist in parallel, linked records. The second option is analogous to the use of 7XX fields in MARC 21.⁷

Hebrew and Other Nonroman Script Implementation in Library Systems

The first implementation of nonroman scripts in machine-readable bibliographic and authority records was in Israel. In 1981, the Automated Library Expandable Program (ALEPH) system, utilizing locally developed software, implemented both roman and Hebrew scripts in its library network. The system also offered authority file to bibliographic file linkage.⁸

The 1980s witnessed advances in technology that led to the implementation of nonroman scripts for use in the online catalog in the United States; RLG added the capability to encode Hebrew script to its bibliographic database, then known as RLIN, in 1988.⁹

Presently, the RLG Union Catalog contains almost half a million catalog records in Hebrew-script languages, with approximately half of these containing Hebrew script data.¹⁰ The OCLC Online Computer Library Center (OCLC) recently introduced Hebrew, Greek, and Cyrillic scripts in its WorldCat bibliographic database with the Connexion client.¹¹ The database has almost 65,000 records in its database containing Arabic script.¹² LC has converted its MUMS library system, which did not display nonroman scripts to Voyager software.¹³

The LC/NACO Authority File

LC/NAF resides at the Library of Congress with copies maintained by OCLC, RLG, and the British Library, the other LC/NAF partner sites (distribution recipients).¹⁴ LC/NAF records are restricted to Latin script. Including Hebrew and other nonroman scripts in LC/NAF records can only take place when LC and other LC/NAF partner sites all have the same script capability. Very soon, all LC/NAF partner sites will have compatible capacities for nonroman scripts.¹⁵

Cataloging Standards and Principles

Catalogers at LC, members of the NACO Hebraica Funnel project (a group of libraries that have joined together to

contribute name authority records to the national authority file), and other Hebraica catalogers who contribute to LC/NAF have been involved in establishing Hebrew and Yiddish names and titles in this authority file for more than ten years.¹⁶ LC/NAF headings are established according to the *Anglo-American Cataloguing Rules*, 2nd ed., 2002 rev. (AACR2), *Library of Congress Rule Interpretations* (LCRIs), *MARC 21 Authority Format for Authority Data*, and *Public Section Z1 of the Descriptive Cataloging Manual* (DCM Z1).¹⁷ Headings for people, places, and so on, with Hebrew script names, are romanized in conformance with the various rules and practices prescribed in the tools mentioned above, Paul Maher's guide for cataloging Hebraica materials, and LC.¹⁸

Functional Requirements for Authority Records: A Conceptual Model (FRAR) was recently issued by IFLA for review by the library community.¹⁹ Language and script are included as attributes for some of the entities defined in the FRAR document. Section 6.5 provides definitions and examples for parallel language and alternate script relationships between access points.

Models for Multiscript Records in the MARC 21 Authority Format

The *MARC 21 Format for Authority Data* describes two models, A and B, for multiscript records.²⁰ In Model A, nonroman data appears only in 880 fields. The *MARC 21 Format for Authority Data* defines the 880 field as containing "the fully-content designated representation, in a different script, of another field in the same record."²¹ Subfield 6 is used to link a regular field containing the romanized form with its equivalent 880 field, containing the original script. The variety of romanization schemes and nonroman forms of Hebraica names in authority records make a one-to-one linkage between regular and 880 fields impossible.²² In Model B, a single heading is created for the name using the language and script determined by the source of authority used to establish the heading. Cross-references can be in any language, written in the appropriate script.

LC guidelines in the *MARC 21 Format for Authority Data* prohibit LC and NACO catalogers from using 880 fields for alternate graphic representation in name or series authority records that are contributed to LC/NAF; the inclusion of nonroman scripts in the LC/NAF is under investigation by LC.²³ Between 1980 and 2004, a series of LC and American Library Association (ALA) Machine-Readable Bibliographic Information Committee (MARBI) discussion papers and proposals analyzed and proposed options and characteristics of multiscript headings that could potentially be recorded in authority records.²⁴

Established 7xx fields are available in MARC 21 to link LC/NAF headings to alternative authorized forms that reside in other authority files, thesauri, or lists. The use of this field in LC/NAF is limited to “records created by National Bibliographic Agencies (NBA) and under certain conditions by designated NACO contributors authorized by the NBA from within the same geographic jurisdiction, for the sole purpose of recording the form of heading used in its national bibliography.”²⁵ Contributors to LC/NAF should consult the LC Cooperative Cataloging Team before including 7xx fields in NARs.

In 2001, MARBI Discussion Paper 2001-DP05 proposed Model C, an alternative to Models A and B for authority records.²⁶ This model is based on the concept of a “context marker.” The follow-up discussion paper has not yet been released. The cataloging community has not contributed comments on this discussion paper to the MARC Forum electronic discussion group since January 2002.²⁷

Literature Review

The demand for authorized name headings to be established in the language and script in which they are written is growing exponentially. The literature on nonroman scripts and authority control reflects the technological evolution that has occurred since the 1970s. Relevant articles cover the implementation of Hebrew script capabilities in library systems, cataloging with Hebrew script in the online environment, and aspects of the orthographic, romanization, and bibliographic complexities of languages written in Hebrew script.

Tillett provided a state-of-the-art overview of international work on authority control, including the Virtual International Authority File (VIAF) in 2004.²⁸ Her presentation included an outline of LC planning for the use of all scripts as well as a discussion of how VIAF relates to the Semantic Web.²⁹ Tillett and Plassard presented papers on earlier international and European work.³⁰

Weinberg provided an historic and theoretic overview of Hebraica authority work in general.³¹ Katchen described Hebraica authority control in manual-card and automated environments at Brandeis University through the early 1990s.³² Simon described the introduction of NACO into Hebrew cataloging operations at Princeton.³³ Lazinger and Adler presented the issues facing catalogers of items published in Hebrew script.³⁴ They exhaustively described and compared American and Israeli cataloging practices of Hebraica material.

Administrators and librarians need to evaluate the tradeoffs between benefits and their cost, when deciding on whether or not to add nonroman scripts to bibliographic records. Lerner summarized the issues involved and the

choices that American libraries made about including Hebrew script in catalog records.³⁵

Weinberg and Aliprand examined the issue of a single, multilayered authority record versus multiple records in a multilingual/multiscript environment, and concluded that the IFLA model of multiple authority records for a single entity is correct.³⁶ Aliprand examined the relationship between scripts and languages with respect to authority control, and concluded that language (as embodied in the rules used to establish headings) is a more important feature of authority records than script.³⁷ Examples in these papers show that the complex data relationships in authority records prevent linking of nonroman data with its romanized equivalent(s). Willer and Plassard described how UNIMARC handles relationships between different languages and scripts of headings, and the principles behind the most recent edition of the UNIMARC authority format.³⁸

Aliprand has written numerous and significant articles on nonroman character sets and their integration into library systems. Her presentation on true scripts in library catalogs included a discussion on multiscript authority records.³⁹ She rigorously examined field linkage in authority records in an earlier paper, and showed that 880 fields (that contain nonroman data) should not be linked to romanized equivalents.⁴⁰ Katchen had independently reached this conclusion empirically.⁴¹

The use of Unicode in library records has been gradually progressing. In the first paper on this topic, Aliprand began with a critique of romanization.⁴² She later discussed the impact of the use of Unicode on international cataloging.⁴³ Vernon wrote on the use of romanization for Hebrew and Arabic script cataloging.⁴⁴ Levi and Lazinger profiled automated authority control in Israel in a series of articles about the ALEPH system published between 1984 and 1996.⁴⁵ Aliprand described the addition of Hebrew script to RLIN.⁴⁶

Current Practices for Adding Hebrew Script Access Points in the RLG Union Catalog Standards

North American libraries do not follow any prescribed guidelines or standards for authority control for Hebrew and Yiddish names in Hebrew script. An author's name, corporate body name, or uniform title can appear in the RLG Union Catalog in Hebrew script under many different forms. Most catalog records found in local databases or the RLG Union Catalog either have romanized headings that are from LC/NAF, or have been created in accordance with AACR2. The most successful searching results occur when patrons look for records using romanized headings rather than using nonstandardized Hebrew-script access points.

Survey: Methods

In February 2005, the author sent a query to several Judaica- and cataloging-related electronic discussion lists to identify academic and research libraries that contribute catalog records with Hebrew script to the RLG Union Catalog. A request asking for the name of the principal or head cataloger of the responding institution's Hebraica cataloging team was included in the message. Responses were received from catalogers representing nineteen libraries, which are listed in appendix A. The author then sent a short survey to the appropriate staff at these nineteen libraries (see appendix B). Fifteen catalogers responded, describing practices at their respective libraries. A summary of the responses is presented in table 1.

Survey: Findings and Analysis

This survey revealed that only one library does not provide main and added entries in Hebrew script for personal name, corporate body name, and uniform titles. The fourteen remaining libraries have varying practices for the extent of authority work that they do for Hebrew script personal and corporate name, and uniform title main and added entries; and also for which fields they provide Hebrew script data.

A group of six libraries responded that, while they provide some Hebrew script headings for personal and corporate name, and uniform title main and added entries, they do no authority work on these headings. This group noted that, for the most part, they were inconsistent in their choice of form of a particular heading for both original and derived (copy) cataloging. This group usually transcribes the Hebrew script heading as it appears on the chief source of the item being cataloged. They may or may not provide additions to headings (such as fuller forms of the name, Gregorian or Hebrew calendar dates of birth and death in Hebrew characters or arabic numerals, qualifiers, or language of text to Hebrew script access points). Library users looking for bibliographic records via these uncontrolled Hebrew script forms in their local multi-script catalogs will retrieve only those records that contain that form of the heading. Users may have better results searching Hebrew script access points in the RLG Union Catalog. Because of RLG's clustering algorithm, records that cluster together,

despite their varying forms of access points, are retrievable within a single search.

Catalogers from eight libraries indicated that they perform varying degrees of authority work for personal names, corporate bodies, or uniform titles (or some combination of these) written in Hebrew script. One respondent explained that, while not all catalogers at his library necessarily provide Hebrew script access points for personal names and corporate bodies in their cataloging of original or derived records, catalogers add Hebrew forms of the names to the local authority file residing in their library's local system and connecting to the catalog. These forms serve as cross-references and point to the romanized forms from LC/NAF in their local system. These references are added to their local authority records by professional staff and are based on the Hebrew-script forms found on the items being cataloged. The YIVO Library at the Center for Jewish History created a manual multiscript, multilingual authority file that its catalogers continue to use.⁴⁷ Another respondent reported that, while she does provide some authority work for personal and corporate names for originally created and derived records, her institution does not currently maintain either a manual or online authority file for her library.

Hebrew Script in MARC 21 Authority Records

LC/NAF partners soon will have the capability to include Hebrew and other nonroman scripts in NARs. This is only the first step. Decisions must be made about the content of records. The remainder of this paper addresses this important issue.

Some libraries have already addressed the issue of authority control in multiple languages. Libraries and Archives Canada requires that two authority records be created for headings used as "either main or added entries in records created for Canadiana."⁴⁸ The Hong Kong Chinese

Table 1. Survey responses (N=15)

Does library:	Yes	No
Provide Hebrew script access points (1XX, 7XX)	14	1
Provide Hebrew script fields		
100	11	4
110	11	4
130	7	8
700	11	4
710	11	4
730	7	8
Provide authority work for person names, corporate body names, uniform title	8	7
Establish authorized forms for personal names, corporate bodies, and/or uniform titles*	2	13

*Two responses were unclear and are counted as "no."

Authority (Name) Database includes traditional Chinese headings in related authorized forms as 7XXs in their name authority records, and provides cross-references for variant forms.⁴⁹ The Bibliotheca Alexandrina in Egypt provides romanized forms of Arabic personal names that have been established in Arabic script as 7XX-related authorized headings.⁵⁰

The Hebraica cataloging community in most North American libraries cannot separate itself from LC/NACO workflow. This group establishes headings in Latin script and uses *AACR2*, *LCRI*s, *MARC 21 Format for Authority Data*, and *DCM Z1* as its sources of authority. At the very least, all variant names to the established form in the 1xx field should be treated as cross-references, including those in other scripts. Ideally, this enables a searcher to retrieve, for example, all titles by a particular author regardless of the language and script in which they are searching. LC/NAF, as accessed through LC, OCLC, and RLG, does not support linking cross-references in authority records to established forms in bibliographic records. Many libraries, however, use headings and references from LC/NAF in authority files that reside in their local systems. Some of these files provide automatic authority-to-bibliographic record links.

Figure 1 shows part of the LC/NAF authority record for the author Sholem Aleichem. Figures 2 through 5 present examples of how nonroman scripts potentially can be included in authority records. In figure 1, Latin script is in the 1xx and 4xx fields, with the nonroman script in a series of 880 fields. The first 880 field cannot be linked to the established heading since there can only be one source of name authority for a 1xx field in a MARC 21 authority record. In this example, it is linked to the fourth cross-reference, which provides ALA/LC systematic romanization for the heading in a Hebrew context. The first 880 field also could be linked to the third cross-reference that represents the ALA/LC systematic romanization for the author's pseudonym in a Yiddish context. In other words, the Hebrew script spelling in the first 880 field is the usual spelling of the author's pseudonym in both a Hebrew language and a standard Yiddish context. This authority record shows that a strict one-to-one linking between a Latin script field and the Hebrew script fields (as occurs in bibliographic records) is impossible in authority records. Aliprand investigated five models of linking that can exist in

Heading and Cross-References	Type of Heading/Reference
100 0 Sholem Aleichem,\$d1859-1916	LC/NACO Authorized Heading [pseud. of Sholem Yakov Rabinowitz—Ency. Judaica]
400 0 Cholem Aleichem,\$d1859-1916	French Heading
400 0 Sholem Aleykhem,\$d1859-1916	ALA/LC Systematic Romanization for Heading in a Yiddish Context
400 0 Shalom 'Alekhem,\$d1859-1916	ALA/LC Systematic Romanization for Heading in a Hebrew Context
400 0 Sholem Aleikhem,\$d1859-1916	Russian Heading (ALA/LC Systematic Romanization)

Figure 1. LC/NACO authority record for Sholem Aleichem (partial)

Heading, Cross-References, 880 Fields	Type of Heading/Reference/880 Field
100 0 Sholem Aleichem,\$d1859-1916	LC/NACO Authorized Heading [pseud. of Sholem Yakov Rabinowitz—Ency. Judaica]
400 0 Cholem Aleichem,\$d1859-1916	French Form of Heading
400 0 Sholem-Aleikhem,\$d1859-1916	Russian Heading (ALA/LC Systematic Romanization)
400 0 \$6880-03\$aSholem Aleykhem,\$d1859-1916	Linked ALA/LC Systematic Romanization for Heading in a Yiddish Context
400 0 \$6880-01\$aShalom 'Alekhem,\$d1859-1916	Linked ALA/LC Systematic Romanization for Heading in a Hebrew Context
400 1 \$6880-04\$aRabinovits, Shalom,\$d1859-1916	Linked ALA/LC Systematic Romanization for Author's Real Name in a Hebrew Context
880 0 \$6400-04/(2/r\$aעליכם ש'לום,\$d1859-1916	Linked Hebrew Script Form for 4 th Reference
880 0 \$6400-02/(N\$aИголем Адейхем,\$d1859-1916	Linked Cyrillic Form for 2 nd Reference
880 0 \$6400-03/(2/r\$aאלייכעם ש'לעמע,\$d1859-1916	Linked Soviet Yiddish Form For 3 rd Reference
880 1 \$6400-04/(2/r\$aרבינוביץ' שלום,\$d1859-1916	Linked Hebrew Script Form For 5 th Reference
880 0 \$6400/\$1\$a洛姆 阿莱汉姆,\$d1859-1916	Unlinked Chinese Form

Figure 2. MARC 21 authority format Model A for Sholem Aleichem

an authority record and rejected them all.⁵¹ Even if it were possible to pair headings one-to-one in each script, the implementation with complex tagging, field and linking structures would be cumbersome.

Figure 3 shows a Model B record containing the established form for Sholem Aleichem as well as a series of nonroman-script cross-references. A simple, multiscript authority record in which both the roman and script data are stored in regular 1xx and 4xx fields is a much easier solution to put into place. The *MARC 21 Format for Authority Data* specifies only one authorized heading per record.⁵² The language of the catalog is indicated in the subfield “b” of the MARC 21 tag 040. The heading is formulated according to the *MARC 21 Format for Authority Data* control field tags 008/08-008/10, which identify the “language of catalog,” “kind of record,” and the “descriptive cataloging rules” used to formulate the name, name/title, or uniform title in established headings.

In its simplest implementation, multiple script cross-references can be added to existing and new authority records. Source data in the 667-688 note fields can be entered in transliteration or in the true script. Decisions will need to be made on how to handle dates and additions to nonroman script references that contain a term normally given in the language of the cataloging agency. This applies as well to name/title headings and corporate body headings in which the main entry element has been established in the language and script of the catalog. LC/NAF references need to be formulated in accordance with AACR2 and LCRIs guidelines. One alternative, though not the most elegant, is the use of two or more scripts in one reference, seen in the record for Sholem Aleichem’s short story, *Teyye der milkhiker*, in Hebrew (figure 4).

Another solution is to establish headings in one language and its true script(s), and include 7xx linking entry fields for equivalent, established headings in other languages (and their scripts). This model is demonstrated in figure 5.

Multiple established headings and their accompanying reference (or syndetic) structures cannot be contained in a single authority record. Nonrepeatable data elements in MARC 21 authority records prevent an authority record from being used to establish headings based on alternative sources of authority. In other words, the IFLA model of complementary records in linked language-based authority files should be used.⁵³ As described by Weinberg and Aliprand, the library of the YIVO Institute for Jewish Research established separate card catalogs and authority files for authors in Yiddish, Hebrew, Latin, and Cyrillic

Heading and Cross-References (Transliteration and Scripts)	Type of Heading/Reference
100 0 Sholem Aleichem,\$d1859-1916	LC/NACO Authorized Heading [pesud. of Sholem Yakov Rabinowitz—Ency. Judaica]
400 0 Cholem Aleichem,\$d1859-1916	French Form
400 0 Sholem Aleykhem,\$d1859-1916	ALA/LC Systematic Romanization in a Yiddish Context
400 0 Shalom ‘Alekhem,\$d1859-1916	ALA/LC Systematic Romanization in a Hebrew Context
400 1 Rabinovits, Shalom,\$d1859-1916	ALA/LC Systematic Romanization for Author’s Real Name in a Hebrew Context
400 0 שלום עליכם,\$d1859-1916	Hebrew or Yiddish Form [preferred] of LC/NACO Authorized Heading
400 0 Шолем Алейхем,\$d1859-1916	Cyrillic Form
400 0 אליכעם שאלעם,\$d1859-1916	Soviet Yiddish Form
400 1 שלום, רבינוביץ \$d1859-1916	Hebrew Script Form of Author’s Real Name in a Hebrew Context
400 1 שלום, ראבינאביץ \$d1859-1916	Hebrew Script Form of Author’s Real Name in a Yiddish Context
400 0 肖洛姆 阿莱汉姆,\$d1859-	Chinese Form

Figure 3. MARC 21 authority format Model B for Sholem Aleichem

scripts.⁵⁴ Authors who write in more than one language, or whose works appear in translation (or in different scripts) may have up to four separate authority records. Weinberg and Aliprand emphasize that “Another argument against a single composite record with multiple syndetic structures is that it would be more complicated to process and update.”⁵⁵

If a centralized database of either headings written in the Hebrew language or headings written using the Hebrew script (Hebrew, Yiddish, Ladino, Judeo-Arabic, and so on) were to exist, a bilingual or multilingual library catalog could offer options of invoking Hebrew and English headings for search and display, and linking headings from LC/NAF to alternative authority records with their full reference structures.

Heading and Cross-References	Type of Heading/Reference
100 0 Sholem Aleichem,\$d1859-1916.\$Teyyeder milkhiker.\$lHebrew	LC/NACO Heading for Uniform Title of Teyyeder milkhiker in Hebrew
400 0 Sholem Aleichem,\$d 1859-1916.\$טוייהא מילכיקער דער \$lHebrew	Cross-Reference with Original Yiddish Title in Hebrew Script
400 0 Sholem Aleichem,\$d1859-916.\$Toviyah ha-holeb	LC/NACO Cross-Reference With Romanized Hebrew Title
400 0 Sholem Aleichem,\$d1859-1916.\$טוייהא הוהלב	Cross-Reference with Hebrew Title in Hebrew Script

Figure 4. Mixed script references for LC/NACO authority record NAFL79119

Headings, Cross-References	Type of Heading/Reference
100 0 Sholem Aleichem \$d1859-1916	LC/NACO Authorized Heading (pesud. of Sholem Yakov Rabinowitz—Ency. Judaica)
400 0 Cholem Aleichem,\$d1859-1916	French Form
400 0 Sholem Aleykhem,\$d1859-1916	ALA/LC Systematic Romanization in a Yiddish Context
400 0 Rabinovits, Shalom,\$d1859-1916	ALA/LC Systematic Romanization for Author's Real Name in a Hebrew Context
400 0 אלייכעם שאלעם,\$d1859-1916	Soviet Yiddish Form
400 1 רבינוביץ, שלום,\$d1859-1916	Hebrew Script Form of Author's Real Name in a Hebrew Context
400 1 ראבינאביץ, שלום,\$d1859-1916	Hebrew Script Form of Author's Real Name in a Yiddish Context
400 0 肖洛姆 阿莱汉姆,\$d1859-1916	Chinese Form
700 07 Cholem Aleichem (1859-916)\$2FrPBN	Authorized Form From Bibliothèque nationale de France
700 07 шолом-алейхем\$2RuSPBN	Authorized Form From Russian National Library
700 04 עליכם שלום	Authorized Form From Thesaurus of the Index to Hebrew Periodicals

Figure 5. MARC 21 format authority format Model B with 7xx relator fields

Suggestions for a Hebraic Name Authority File

Israeli Sources for Hebraic Headings

At the present time, no single authoritative source exists for Hebraic language names and titles. Several projects in Israel presently serve as resources for headings. The Institute of Hebrew Bibliography produces the *Bibliography of the Hebrew Book 1473–1960*.⁵⁶ This bibliography offers authority control in both Hebrew and Latin characters for names and place names, and is under the control of the Jewish National and University Library (JNUL). A subcommittee of JNUL's Standing Committee developed a list of authorized headings in Hebrew for Jewish liturgical and sacred works. This list is available via telnet at an ALEPH Israeli network host site.⁵⁷ The staff at the Index to Hebrew Periodicals maintains an authority file of both persons (as authors and subjects) and generic/geographic Hebrew subjects.⁵⁸

While many Israeli libraries utilize local authority files, no national or central authority file exists in Israel similar to LC/NAF. Lazinger and Adler reported that Israeli practices for establishing headings differ significantly from American practices, and that Israel still does not follow uniform and definitive cataloging standards and policies.⁵⁹ Different libraries have various solutions for establishing Hebraica names. The variations and complexities of Hebrew orthographies are well documented. Most Israeli institutions normalize headings according to one convention or another, while transcribing the data on the title page in descriptive fields as it appears.

The creation of a Hebraic authority file will depend on a number of issues. Standards and guidelines will need to be investigated and carefully articulated. These will have to reflect the unique characteristics of Hebraica authors, titles, and corporate names.

Cataloging Codes and Reference Tools

What cataloging codes will be followed? Every authority file specifies a set of descriptive cataloging rules that are used to formulate the 1XX name, name/title, or uniform title heading in established heading or reference records. American catalogers mostly adhere to AACR2. In Israel, Adler, Shichor, and Kedar issued *ha-Kitlug: sefer yesodot u-khelalim*, which presents the principles of AACR2, rearranged and modified for Israeli catalogers of Hebraica materials.⁶⁰ A section of the book matches Hebrew rules with their AACR2 equivalents. However, not every AACR2 rule has a Hebrew equivalent, nor does every Hebrew rule have an AACR2 equivalent (though most of the Hebrew ones do).

Reference tools need to be identified that serve as required sources of information, or as aids in creating authorized headings and references. These include encyclopedias, dictionaries and lexical tools, encyclopedias, bio-bibliographies, and collective biographies, gazetteers, and other miscellaneous resources.

Other Considerations

To what orthographic conventions will the file adhere? Will headings be normalized to defective or plene spellings? What guidelines will be developed for treatment of Yiddish orthographic conventions? Specifically, will this file be a language-based or script-based file; that is, should the file have controlled, linked headings for different languages in Hebrew script (such as Yiddish, Ladino and Judeo-Arabic), or will there be a single heading in Hebrew script with cross-references to the form(s) in the other languages? In Israel, where Hebrew is the dominant language, cross-references could be created from other languages written in Hebrew script. On the other hand, as seen in the YIVO example, Yiddish and Hebrew have equal standing. There is authority control for headings in these languages, as well as for English and Cyrillic (predominantly Russian) headings.

Conclusion

The addition of nonroman script data in MARC 21 authority records is not far in the future. However, no decisions have yet been made on what these records will look like. LC and NACO members will need to work together and develop guidelines for the implementation of MARC 21 nonroman script data in NARs contributed to LC/NAF.

Adding cross-references is the least expensive and simplest way to add Hebrew script forms to established Hebraica headings in LC/NAF. LC and NACO catalogers can provide these cross-references as they come across them in their cataloging workflow. Eventually these records can be linked to a parallel Hebraic authority file.

Agreeing on national and international standards and guidelines for the structure of multiscript and multilingual authority records is challenging. The intellectual considerations are overwhelming, not to mention the economic. Building and successfully maintaining a Hebraic name authority file will require a collaboration of all of the Judaica and Hebraica cataloging communities in the United States, Israel, Europe, and the rest of the world. These groups will have to work together and share responsibilities for the creation of a Hebraic name authority file. They will then have to prepare for its eventual integration into a larger, international authority file.

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Appendix A. RLIN Hebrew Script Libraries Surveyed

Library of Congress*
 John Rylands Library of the University of Manchester*
 New York Public Library*
 Yale University Library*
 University of California, Santa Barbara*
 Bodleian Library at Oxford University*
 Cambridge University Library
 YIVO Library from the Center for Jewish History*
 University of Pennsylvania Library*
 University of Michigan at Ann Arbor Library
 Stanford University Libraries*
 Spertus Institute of Jewish Studies Library*
 Yeshiva University Library*
 Hebrew College Library*
 Library of University of Judaism*
 Library of the Jewish Theological Seminary of America*
 Klau Library (Library of Hebrew Union College–Jewish Institute of Religion,
 Cincinnati)*
 Frances Henry Library (Hebrew Union College–Jewish Institute of Religion, Los
 Angeles)
 Klau Library (Library of Hebrew Union College–Jewish Institute of Religion, New
 York)

*indicates respondents to survey

Appendix B. Hebrew Script Survey

1. Do you provide main and added entries (100/110/130, 700/710/730 fields) for personal names, corporate body names and/or uniform titles in the Hebrew and Yiddish languages uniform titles in Hebrew script?
Yes_____ No_____ (If yes, please continue. If no, stop here.)
 2. Please indicate for which fields you provide Hebrew script
100____ 110____ 130____ 700____ 710____ 730____
 3. Do you do authority work for personal names, corporate body names and/or uniform titles written in Hebrew script? Yes_____ No_____
- (If your answer is "no," please go to Section A. If your answer is "yes," please go to Section B.)

Section A: My library does not do authority work for personal names, corporate body names, and/or uniform titles in Hebrew script.

1. Please explain what principles you follow for personal name main and added entries written in Hebrew script for:
 - a. Original cataloging
 - b. Derived cataloging (copy cataloging)
2. Please explain what principles you follow for corporate body name main and added entries written in Hebrew script for:
 - a. Original cataloging
 - b. Derived cataloging (copy cataloging)
3. Please explain what principles you follow for uniform title main and added entries written in Hebrew script for:
 - a. Original cataloging
 - b. Derived cataloging (copy cataloging)

Section B: My library establishes authorized forms for personal names, corporate body names, and/or uniform titles written in Hebrew script.

1. Please indicate the type of entry for which you establish authorized forms in Hebrew script
Personal names (100 and 700 fields): Yes_____ No_____
- Corporate body names (110 and 710 fields): Yes_____ No_____
- Uniform titles (130 and 730 fields): Yes_____ No_____
2. Please explain what source of cataloging authority (sources of information, cataloging codes, etc.) you follow to establish these headings (take as much space you need):

3. Does your library or institution maintain a manual or automated authority file?
Yes_____ No_____
4. Where do you use established headings in Hebrew script? (Check all that apply)
Original cataloging _____
Derived cataloging (copy cataloging) _____

Understanding FRBR As a Conceptual Model

FRBR and the Bibliographic Universe

By Allyson Carlyle

Functional Requirements for Bibliographic Records (FRBR) presents a complex conceptual model. Because of this, it is not easy for everyone to understand. The purpose of this paper is to make some of the more difficult aspects of the FRBR model, in particular the Group 1 entities work, expression, manifestation, and item, easier to understand by placing FRBR in the context of what it is: a conceptual entity-relationship model. To this end, a definition of the term "model" is presented, a variety of types and functions of models are introduced, conceptual models are discussed in detail, modeling an abstraction is explained, and different ways of interpreting FRBR are suggested. Various models used in the history of cataloging are introduced to place FRBR in the context of the historical development of document models.

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This paper is based on a presentation given at the ALCTS preconference, "Back to the Future: Understanding the Functional Requirements of Bibliographic Records Model (FRBR) and Its Impact on Users, OPACs, and Knowledge Organization," held in Orlando, Florida, June 24, 2004.

It is the outcome of six years of teaching the FRBR model, answering student questions about it, reading student papers about it, and explaining it to inquisitive faculty who return from conferences at which it was mentioned. My thanks to the students, faculty, and friends who helped me clarify the issues presented in this paper. I also wish to acknowledge the contributions of Tom Delsey, Patrick LeBoeuf, Elaine Svenonius, Barbara Tillett, and the members of the IFLA Working Group on Harmonization of FRBR/CIDOC CRM to my thinking about FRBR and models. My thanks also to Peggy Johnson and the anonymous reviewers for their helpful comments and suggestions.

FRBR, *Functional Requirements for Bibliographic Records*, presents a complex conceptual model that is not easy for everyone to understand.¹ One reason people have difficulty understanding the FRBR conceptual model is that they have difficulty understanding the nature of models, in particular, conceptual models. In this paper, FRBR's status as a model is examined in detail to explicate more fully what it is, what it is not, and what it attempts to do. Various definitions of the word "model" are presented, followed by a variety of examples of model types and functions. Because FRBR is a conceptual model of abstract entities, a discussion of modeling abstractions also is presented. The focus of the discussion throughout this paper is the Group 1 entities: *work*, *expression*, *manifestation*, and *item*. Several strategies are presented to clarify the more difficult abstract entities in FRBR: *work* and *expression*. Because FRBR is the most recent of a series of conceptual models used in library cataloging, models used prior to FRBR are described and compared to FRBR. Finally, various challenges surrounding the adoption of FRBR are discussed, for example, drawing the line between such abstractions as *work* and *expression*.

Models

FRBR is a conceptual model, but what does that mean? Models are used everywhere, from civil engineering to life-and-death situations in hospitals to playtime in the backyard. Because models are used in so many contexts, encountering many different meanings of the word "model" in the dictionary is not surprising.

The four definitions below illustrate the range of meanings for “model”:

- A representation of something (sometimes on a smaller scale).²
- A schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics: a model of generative grammar; a model of an atom; an economic model.³
- A simplified description of a complex entity or process.⁴
- A preliminary work or construction that serves as a plan from which a final product is to be made: a clay model ready for casting.⁵

Models are extremely useful, particularly in library and information science (LIS), a discipline that has at its core an abstraction—“information.” Bates states, “Models are most useful at the description and prediction stages of understanding a phenomenon.”⁶ Documents are the central phenomena of LIS in general, and cataloging in particular. Despite several centuries of practice, the profession is still beginning to understand what it means, or perhaps can mean, to catalog a document.

In essence, FRBR is a model of a model, if one considers that a bibliographic record is a representation of a document and so, in its own way, is as much a model as FRBR. If one considers a title page or other chief source of information to be a representation of a document as well, and thus a model in its own right, FRBR is a model of a model of a model of a document. In the list of definitions above, the first and third fit FRBR most closely. FRBR is a representation and simplified description of the bibliographic universe.

As noted in the definitions, models come in different types, which are used in a variety of environments, among them scale models (used in architecture), representational models (used in engineering), mathematical models (used in many of the sciences), and conceptual models (used in database design and cataloging). These types of models serve specific types of purpose. For example, models may be used to predict behavior, events, or other phenomena; test theories; produce technologies or artifacts; demonstrate a potential finished project; and improve products, processes, or technologies. FRBR is a conceptual model with the primary purpose of improving cataloging records (a product), cataloging (a process), and catalogs (a technology).

Conceptual Models

Conceptual models (in the systems world, these are sometimes called abstract models) are theoretical models.

Mäki, exploring the nature of models in an article for the *International Encyclopedia of the Social & Behavioral Sciences*, describes theoretical models as “simplified systems or structures . . . [which are] imagined or described but not literally built.”⁷ One of Mäki’s comments helps to make the nature of FRBR clearer. He states that a theoretical model “often assumes away many complications while highlighting limited aspects of the object.”⁸ This statement describes a major strength of conceptual models, which is that they facilitate understanding and manipulation of complex entities by rendering them *less* complex. This is also a potential weakness, if critical aspects of what is modeled are somehow assumed away.

Conceptual Models of Love and Work

Conceptual models can model things, processes, or abstractions—in other words, they can model almost anything. Of all of the things that a model can model, abstractions may be the most difficult. One reason is that the act of modeling, particularly the type of modeling that the creators of FRBR used, is often an attempt to make something that is abstract into something that is, at least in some senses, concrete. That is, it is an attempt to make the presence of an abstraction knowable by identifying the things that point to its existence.

To give an example outside of cataloging, imagine trying to model something like love. Love is an abstraction, but it is something we all know and can recognize. Exactly how do we do that? To make a model of love that can be used in research or in some other kind of rationalized practice or process, we operationalize it. Operationalizing makes it possible to observe, count, or verify something such as love. However, operationalizing something very abstract, such as love, is not only difficult, it can cross the line into the comical. For instance, because we cannot see love, we have to identify things that are observable to indicate the presence or existence of love. Thus, one could operationalize the presence of love between two people by counting the number of times they kiss each other and the amount of time they spend with each other, or observing whether they live together, and so on. Doubtless, these actions are easy enough to verify, but no matter how many of them we come up with, any model of love gives a rather sorry representation of the real thing.

The FRBR Group 1 entities *work* and *expression* are abstractions that have a lot in common with love. How do we count or point to evidence of “a distinct intellectual or artistic creation?”⁹ To use the FRBR entities *work* and *expression*, we have to find ways to make them identifiable. Fortunately, we have two acceptable types of evidence to verify the existence of *work* and *expression*: first, what documents say about themselves and what others say about

them; and second, what people say when they want to find a document. A document may say about itself, “Translated from Amy Tan’s *Joy Luck Club* into Spanish by Jordi Fibla” or “*Rudden and Wyatt’s EU Treaties and Legislation*, edited by Derrick Wyatt, 8th edition; revision of *Basic Community Laws*, edited by Bernard Rudden and Derrick Wyatt, 7th edition.” These are statements found on title pages that identify expressions. A library user may ask a question like “Do you have Seamus Heaney’s translation of *Beowulf*?” (a request for an *expression*) or “Do you have Stephen Hawking’s *A Brief History of Time*?” (a request for a *work*). Upon further questioning, many such users do not have a particular item or even a particular manifestation in mind. What they are interested in are abstractions—the content, either at the *expression* or the *work* level (not as published by a particular publisher on a particular date or on a particular item signed by an author or translator).

If library users did not ask such questions or initiate such searches, cataloging models including such abstractions as *work* and *expression* would not be needed. If they were not needed, they would never have been created by the cataloging community, regardless of statements made in items. We care about connecting users with the materials they seek. To do this well, we need the catalog to identify such abstractions as *work* and *expression*.

In our profession, we find a variety of troublesome abstractions. Consider, for example, the notions of “information” or “document”—many have tried to define and model these abstractions. However, the LIS community has yet to reach consensus as to what these words mean, or to agree on a particular model of them. To quote a familiar example, is an antelope a document? Under what circumstances might it be a document, if it could be one? LIS students often laugh when they read Briet’s 1951 assertion that an antelope, under specific circumstances, is a document.¹⁰ However, Briet’s claim that an antelope is a document, and the circumstances under which it is or is not a document, is a serious attempt to make the notion of document more concrete—in other words, to model the notion of “document.” It offers an example of the type of evidence needed to decide when one has a document and when one does not.

Entity-Relationship Models

To make matters more complicated, FRBR is a very specific type of conceptual model—an entity-relationship (ER) model. ER modeling is a technique that specifies the structure of a conceptual model. In other words, it specifies the kind of things that have to be in it and the properties those things may have. A simplified explanation of the structure stipulated by an ER model is that three kinds of things are allowed in it: *entities*, *attributes*, and *relationships*. *Entities* are things, either physical or abstract. Thus, an entity can

be virtually anything; *relationships* are interactions among entities; and *attributes* are properties or characteristics of either entities or relationships. For example, one of the simpler FRBR entities is “object,” which is defined as “a material thing.”¹¹ Objects have attributes such as “term”; thus, Seattle’s most conspicuous architectural object has the term attribute “Space Needle.” In the bibliographic universe, objects frequently have an aboutness relationship with works, so the work *The Space Needle: Symbol of Seattle* is about the Space Needle.

Chen introduced ER modeling as a technique to facilitate the development of database systems.¹² Creating a good database is difficult, and good conceptual modeling of the world that the database system is intended to capture can help make a more successful system. In general, the better the conceptual modeling, the more successful the system.

Because ER models are created for specific purposes and have a specific structure, they include only those aspects of the world that are relevant to their purpose. As a result, ER models tend to highlight limited aspects of what they are modeling. Thus, an ER model is not a complete picture of the world but a picture that is drawn to accomplish a purpose. One ramification of this fact is that limitless ER models could be created to represent the same thing.

Evaluating Conceptual Models

Many people want to evaluate a conceptual model such as FRBR using true or false criteria. While one can say that a model is true to the extent that it explains accurately and false to the extent that it does not, this is not a very helpful way to look at models. A much more useful way to evaluate models is to ask whether they are successful at fulfilling their purpose. When the purpose of a model is to improve a product or process, the best way to make an evaluation of that model is to see whether it succeeds or not. From this perspective, a model that contains many inaccuracies could do a better job than one with few, because it is more successful at fulfilling its purpose. For example, some conceptual models are very complex—so complex that they are difficult for people to understand and implement. A complex model could fail quite easily if, because it was too complex, it was never used.

Another way to look at evaluating models is to consider love again. If one were to model love, how would one do it? In ER modeling terms, love could be modeled as a single entity, encompassing all different types of love, or it could be modeled as multiple entities (parental love, brotherly love, and so on). The choice to make love one or more than one entity should relate to purpose—what end is a particular model of love trying to serve? Saying that an ER model of love that treats it as one entity is true and one that treats it

as multiple entities is false, or vice versa, makes little sense. The point is, does the model do its job well or not?

The developers of FRBR clearly state their goal: “The aim of the study was to produce a framework that would provide a clear, precisely stated, and commonly shared understanding of what it is that the bibliographic record aims to provide information about.”¹³ Thus, one of the main purposes of FRBR, in addition to creating better catalogs and cataloging records, is to promote a commonly shared understanding—a much desired goal in a bibliographic universe made increasingly complex by new and varied material types, user requirements, and information systems.

FRBR is an exciting model with great potential. It has taken the cataloging world by storm and may be the most far-reaching development in cataloging for many, many years. However, we do not know if it will meet its goals. If its success is limited, one of the reasons could be the *expression* entity, which can be difficult for people to understand. If this lack of understanding were widespread and persisted through implementations of FRBR and the cataloging rules, one could consider that part of the model as not successful. If that happened, it would not mean that the FRBR model was wrong or false, but only that part of it failed to perform the task it was intended to perform.

Another characteristic of conceptual models is that different models of the same phenomenon could all be successful (or not). A good example of multiple models of the same thing are FRBR and Interoperability of Data in E-commerce Systems (INDECS), which both model the bibliographic universe.¹⁴ While INDECS looks a lot like FRBR, it is not the same, even though it describes the same phenomenon. INDECS was created to respond to needs in the intellectual property rights management community and, because it has a different purpose, much of it is different from FRBR. Saying that one is a better or more true model of the bibliographic universe than the other is not helpful. Each may serve its respective community well and, as such, be an equally good model of the same universe.

Other Cataloging Models

One of the clearest ways to understand the Group 1 entities model in FRBR is to look at it in the context of other models that have been used in the history of cataloging. A review of historical trends suggests that the cataloging community’s view of the object of its work—the document—has become increasingly complex. Perhaps that is not unexpected, given the availability of increasingly varied document types and the increased complexity of our retrieval environments. Although this discussion is framed historically, the progression presented is not strictly chronological. Current catalogs could

be found that exemplify each of the models described here; some early catalogs—for example, Panizzi’s catalog of the British Museum—exemplify the more complex models.¹⁵

One-Entity Model

Many early library catalogs were inventories, simple lists of items owned by a particular library. The model being used in any document inventory is a “one-entity model,” in that the only entity recognized is “item” or “copy.” Rare book or manuscript catalogs are one-entity catalogs when the only entity being described is a single physical document.

Two-Entity Model

As library collections grew, and libraries collected multiple editions of a work more often, catalogs began to function as retrieval systems as well as inventories. Cataloging records in these catalogs represented editions as well as copies. Looking at these cataloging records now, one can see the distinction between edition (analogous to manifestation) and copy (item) quite clearly. In figure 1, a partial result from an author search on “Shakespeare, William” in a typical online catalog is presented. Assuming that the selection of any title presented would result in a record in which call numbers for a copies are presented, this catalog display represents a two-entity model: edition and copy. Any catalog that does not use uniform titles as filing titles, which collocate manifestations representing a work, would exemplify this model.

Three-Entity Model

In 1936, Pettee proposed that catalogers formally recognize and identify in the catalog an entity she called “literary unit,” which is more or less equivalent to what we now call *work*.¹⁶ This view was promoted by many catalogers, including Lubetzky, who was instrumental in incorporating works into the objectives of the catalog presented in the 1961 Paris Principles.¹⁷ Although Pettee was, perhaps, the first person to explicitly define and write about *works*, library catalogs had been implicitly identifying *works* for a very long time via cataloging and filing rules, and the resulting record arrangements.¹⁸

Any library catalog using uniform titles consistently as filing titles is a catalog that exemplifies a three-entity model: copy, edition, and *work*. The three-entity model is currently supported, although not required, in the *Anglo-American Cataloguing Rules*, 2nd ed. (AACR2).¹⁹ Chapter 25, providing rules for use of uniform title, contains rules that are applied optionally. In figure 2, the same partial results for an online catalog author search on “Shakespeare, William” are presented. This catalog display collocates editions of Shakespeare’s works by using uniform title, then subar-

Partial result of "Shakespeare, William" author search, results organized by title proper
Falstaff: comedy in three acts
First part of Henry the fourth
First part of the history of Henry IV / edited by M. A. Shaaber.
First-second part of the history of Henry IV
Hamlet
Henry IV part I and Henry IV part II
Henry IV. Part one. / William Shakespeare; edited by David Bevington ...
Henry the Fifth: a historical play in five acts
Henry the Fourth. Part I / general introduction by David G. Pitt.
Henry the Fourth, Part I / edited by David Bevington
History of King Henry the Fourth, part I
Julius Caesar
King Henry IV
King Henry the Eighth
King Henry the Fourth Part I
Most excellent and lamentable tragedy of Romeo and Juliet
Second part of Henry the Fourth
Second part of Henry the Sixth
Second part of the history of Henry IV
Second part of King Henry the sixth
Shakespeare's Hamlet, the second quarto, 1604
Shakespeare's second part of King Henry IV
Shakespeare's Tragedy of Hamlet

Figure 1. Two-entity model

ranges each work by title proper (representing manifestations). Copy information is again presumed to be available in single-record displays. Notice that multiple expressions are present in the display, but they are not collocated; see the two manifestations of an expression of King Henry IV, Part I, edited by David Bevington. The lack of collocation indicates that the expression entity is not recognized. In library catalogs, at least at present, collocation of editions or manifestations is what identifies the work and expression entities.

Four-Entity Model

Wilson attributes the identification of an entity he calls "text" to a 1959 article in *Libri* by Verona.²⁰ Texts are, according to Wilson, "[a collection of] certain words into a certain order."²¹ Wilson's definition of text is similar to the FRBR conception of "expression," although much more limited, Wilson's definition excludes many nonbook materials. Even though Verona identified the "text" entity explicitly in 1959 and Wilson emphasized the importance of this entity, it has never been incorporated into a set of cataloging rules. However, the text entity is recognized in current rules in a limited way for religious texts.²² Note that the

AACR2 conception of this entity is more narrowly interpreted than the text entity or the FRBR expression entity.

In figure 3, the example from the previous two figures has been configured to illustrate a four-entity model. In this figure, identical expressions are displayed on a single line in a level one display. Thus, thirteen separate entries for Henry IV have been reduced to six. One of the great advantages of FRBR-based displays is that long displays may be made much shorter, enhancing the intelligibility and browsability of results. Note that parts have been displayed here as separate expressions, although the display could be shortened further by collapsing all editions of part one together, or by combining the parts with the whole.

In summary, while FRBR looks very new and unfamiliar, it is the culmination of cataloging models used throughout cataloging history. What is new and different about FRBR is the following:

- it explicitly identifies and defines four entities;
- it recognizes four entities simultaneously; and
- it presents a cataloging model using an ER modeling technique.

Viewing Group 1 Entities As Sets

Another way to clarify the definitions of the Group 1 entities is to present them as sets. In the early stages of FRBR's creation, Svenonius, a member of the IFLA Study Group on FRBR, suggested using set theory to model the bibliographic universe, a suggestion she reiterated in *The Intellectual Foundation of Information Organization*.²³ Although the study group eventually chose the ER modeling technique, viewing the FRBR Group 1 entities as sets is also possible. One of the great advantages of sets is that they facilitate the conversion of such abstractions as work and expression into physically identifiable (or imaginable) units. The easiest entity to understand is the item entity, because it is physically identifiable. But, if we imagine manifestation, expression, and work as sets of items, they become observable as groups of items in our imaginations.

In figure 4, two related works are represented at the top of the chart. These two works may be viewed as sets of the items represented at the bottom of the chart. The two works are Charles Dickens' *A Christmas Carol*, illustrated in an ER model view in figure 5, and a work that is derived from it, the movie *A Christmas Carol*, starring Alastair Sim. This division between the two as separate works reflects current cataloging rules, which consider a film version of a text to be a modification of content reflecting a change in responsibility and, thus, a new work. The film shares a derivative relationship with the text; in a catalog implementing FRBR, the derivative relationship between these two works would be made explicit. On the next level down are sample expressions of each of the two works. The textual version is embodied in three expressions: two English language versions (each with a different illustrator) and a Braille version. The film version is embodied in two expressions: one a black-and-white version dubbed into Spanish, and the other the original, black-and-white version.

At the bottom of figure 4 are items. On the left, five items comprise the Stewart, Tabori, and Chang manifestation of Dickens' work, and three items comprise the Creative Education manifestation. These two manifestations of Dickens' work share the same alphanumeric string and the same illustrations, and so together may be seen as comprising a unique English-language expression of Dickens' work. This expression is, thus, represented by a total of eight items. Adding together the items representing this expression, the Braille expression shown on the right and the English version with C. E. Brock's illustrations shown on the left, the Charles Dickens' work *A Christmas Carol* is represented as comprising fourteen items total.

Partial result of "Shakespeare, William" author search, results organized by uniform title / title proper (when title proper is the uniform title), then by title proper (title proper in brackets)	
	Falstaff: comedy in three acts
	Hamlet
	Hamlet [Shakespeare's Hamlet, the second quarto, 1604]
	Hamlet [Shakespeare's Tragedy of Hamlet]
	Julius Caesar
	King Henry IV
	King Henry IV [First part of Henry the fourth]
	King Henry IV [First part of the history of Henry IV / edited by M. A. Shaaber.]
	King Henry IV [First-second part of the history of Henry IV]
	King Henry IV [Henry IV part I and Henry IV part II]
	King Henry IV [Henry the Fourth, Part I / [edited by] David Bevington.]
	King Henry IV [Henry the Fourth. Part I / general introduction by David G. Pitt.]
	King Henry IV [Henry IV. Part one. / William Shakespeare; edited by David Bevington and ...]
	King Henry IV [History of King Henry the Fourth, part I]
	King Henry IV [King Henry the Fourth Part I]
	King Henry IV [Second part of Henry the Fourth]
	King Henry IV [Second part of the history of Henry IV]
	King Henry IV [Shakespeare's second part of King Henry IV]
	King Henry V [Henry the Fifth: a historical play in five acts]
	King Henry VI [Second part of Henry the Sixth]
	King Henry VI [Second part of King Henry the sixth]
	King Henry VIII [King Henry the Eighth]
	Romeo and Juliet [Most excellent and lamentable tragedy of Romeo and Juliet]

Figure 2. Three-entity model

No. of records	Partial result of "Shakespeare, William" author search, results organized by uniform title / expression attribute
1	Falstaff: comedy in three acts
3	Hamlet
1	Hamlet [Shakespeare's Hamlet, the second quarto, 1604]
1	Julius Caesar
3	King Henry IV
3	King Henry IV Part 1.
1	King Henry IV. Part 1. [edited by David Bevington.]
2	King Henry IV. Part 1. [edited by M.A. Shaaber.]
1	King Henry IV. Part 1. [general introduction by David G. Pitt.]
3	King Henry IV. Part 2.
1	King Henry V
2	King Henry VI. Part 2.
1	King Henry VIII
1	Romeo and Juliet

Figure 3. Four-entity model

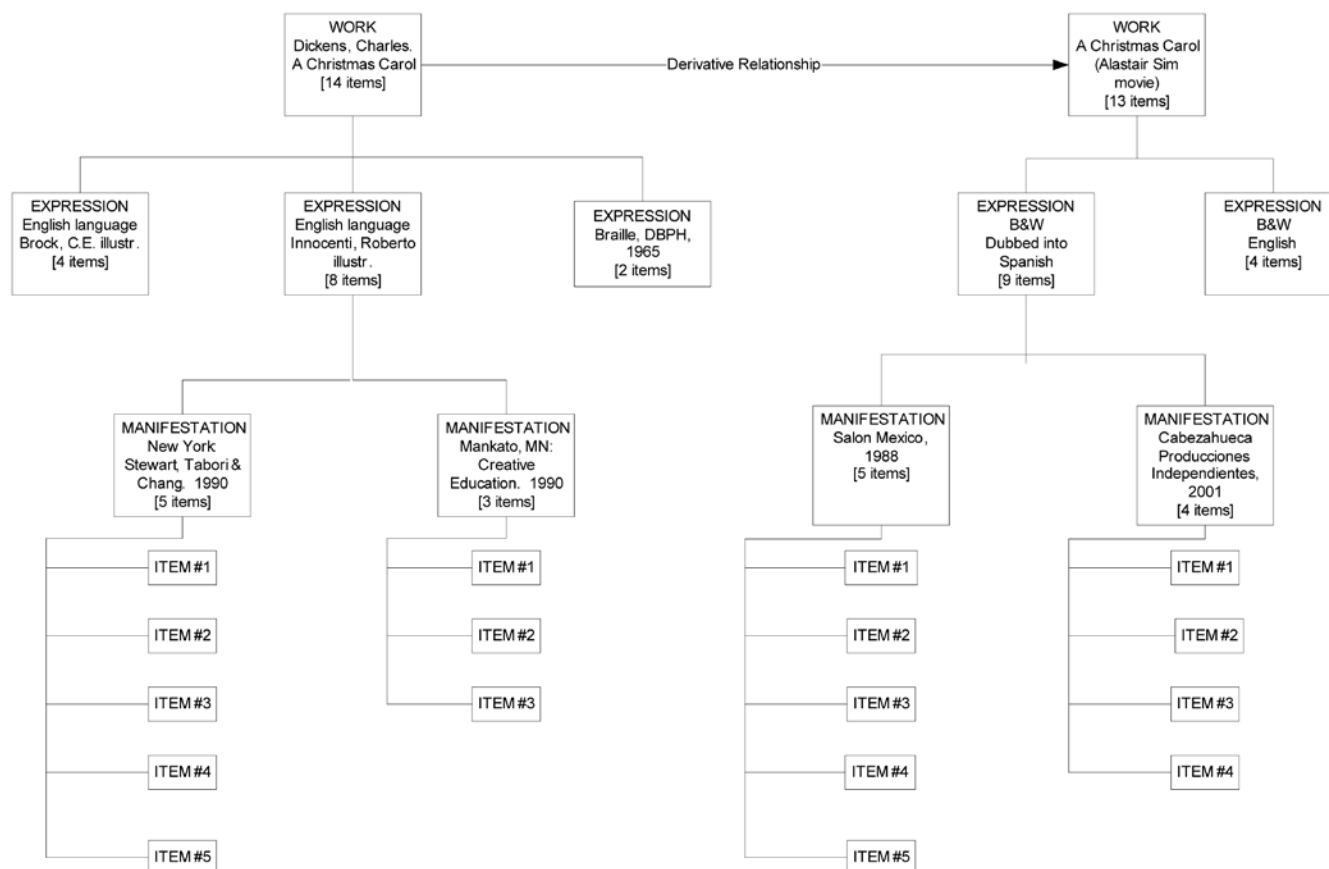


Figure 4. FRBR Group 1 entities viewed as sets of items

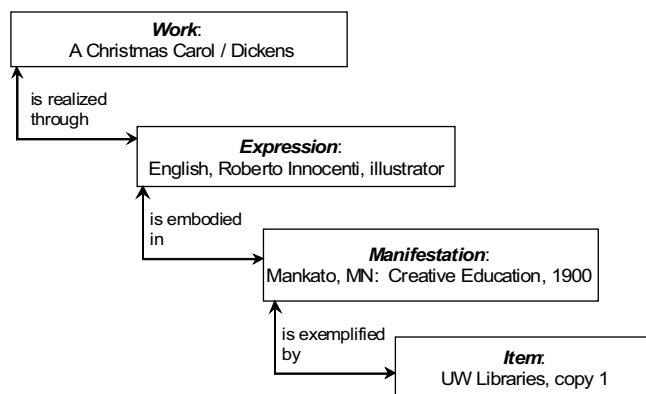


Figure 5. ER Model view of figure 4

In reality, Dickens' work is represented by a great many more items, manifestations, and expressions. The film version illustrated here is comprised of thirteen items total. A possible online catalog view of these works is presented in figure 6.

Process Model or Existential Model?

The Group 1 entities are often described as being created from a process that begins with the work entity and then moves to the other entities. The argument for this view begins with work as an idea in a creator's head, which is then expressed in some kind of symbols, published as a manifestation, and, finally, produced as individual items. However, this interpretation of the model may be dangerous, in part because cataloging something that happens before an item is produced is not possible. Another way to approach FRBR is as an

A Christmas Carol / Charles Dickens [14 copies]		WORK 1
1	English: C.E. Brock, illustrator [4 copies]	Expression 1
2	English: Roberto Innocenti, illustrator [8 copies]	Expression 2
3	New York: Steward, Tabori & Chang, 1990 [5 copies]	Manifestation 1
4	Mankato, MN: Creative Education, 1990 [3 copies]	Manifestation 2
5	Braille, DBPH, 1965 [2 copies]	Expression 3
A Christmas Carol [motion picture, 1951]		WORK 2
1	B & W / English [4 copies]	Expression 1
2	B & W / Spanish (dubbed) [9 copies]	Expression 2
3	Salon Mexico, 1988 [5 copies]	Manifestation 1
4	Cabezahueca Producciones Independientes, 2001 [4 copies]	Manifestation 2

Figure 6. FRBR-based online catalog display, based on sets displayed in figure 4

existential model, which illustrates what documents *are*, not how they are *produced*. As a cataloger, what I see and hold in my hands is an item, but when I see or hold an item, I am also seeing and holding a particular manifestation of a particular expression of a particular work. To create a cataloging record, I determine a main entry (work) citation, usually consisting of a creator's name and a title or uniform title or a title or uniform title by itself—attributes describing the work. I also transcribe information about translators of texts, scales of maps, playing times of CDs—attributes describing expressions. I transcribe places of publication, publisher names, and dates of publication—attributes describing manifestations. I create call numbers and add holdings information—attributes describing items. In creating a cataloging record, I encounter and describe each entity, because the item represents each entity simultaneously.

Implementation Challenges

One of the greatest challenges in implementing FRBR in a code of rules is to determine which items will be assigned by catalogers to which set—in other words, to implement the model. While the 1998 FRBR report provides a list of attributes that might be associated with each entity, it is not meant to be an operationalized or implementation model. Implementation models take conceptual models one or more steps further by stipulating more exact specifications of what has been proposed conceptually. They are intended to take a conceptual model from an abstract to a concrete level, providing explicit direction for implementation in an actual system. The level of detail required to make FRBR operational comes with writing cataloging rules and applying those rules to individual documents. Because room is left for interpretation and operationalization, different codes of cataloging rules produced using FRBR as a foundational

conceptual model could result in different implementation models. Decisions about which items go into the sets for work, expression, and manifestation could vary from one code to another. Even the decision about what an item is could vary.

In the implementation process, decisions about the boundaries of the abstract entities work and expression must be made. For example, will a movie version of an original textual work be considered an expression of that work, or will it be considered to be a new work with a derivative relationship to the original? In the previous example, the Alastair Sim *Christmas Carol* was treated as a new work related

to the original Dickens' work. It is presented in this way because under the current rules, that is how movie versions of texts are treated. However, different decisions could be made in a future code of rules that declare sets of items representing movie versions of texts (and vice versa) to be expressions of those texts, and as a result included in the original work. This would change the diagrams presented in figures 4 and 6 considerably.

One of the more lively FRBR electronic discussion list discussions of the boundary issues began with a question by Espley regarding Braille versions of texts.²⁴ Should a Braille version of an existing text be considered a manifestation of an existing expression of a work, or should it be considered a new expression? The definition of expression, "the intellectual or artistic realization of a work in the form of alphanumeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms" could be interpreted broadly, such that Braille notation is equivalent to alphabetic characters and so Braille should be treated as a manifestation of an existing expression.²⁵ It could also be interpreted narrowly, such that a Braille version represents a different realization and is, therefore, a new expression of an existing work. Figures 4 and 6 represent a Braille version as a separate expression, but a different interpretation of expression could make it a manifestation of a particular expression.

Considering that a Braille version could be created from multiple expressions, such as translations, regarding it as a manifestation is suggested. However, an equally compelling argument could be made that an implementation of FRBR treating Braille versions as expressions would serve users better. For example, in some new implementations of FRBR in online catalogs, patron holds are being placed at the expression entity level, assuming that if a patron wants an English-language version of *A Christmas Carol*, any

manifestation will do. Obviously, if a Braille version were treated as equivalent to other English-language manifestations instead of an expression in its own right, librarians would be confronted by very puzzled and exasperated users. This situation highlights the importance of considering user needs and expectations in the implementation stage.

Another discussion on the FRBR electronic discussion list regarding the boundary between manifestation and expression concerned unintentional changes in content from one publisher to another.²⁶ For example, typesetting can result in changes to a text that are unintentional. In other words, a publisher intends for an alphanumeric realization to be an exact duplicate of another, but because of these unintentional changes it often is not. Assuming that catalogers will not be asked to check new published versions of existing texts on a character-by-character basis, a decision must be made about whether catalogers should, without evidence to the contrary, assume that all new typesettings of textual works, and the equivalents of such changes in nonbook materials, are to be regarded as separate expressions or as manifestations of a single expression. The general consensus on the list seemed to favor regarding new typesettings as manifestations of a single expression. Regardless of whether decisions such as these come with rules or as a result of convergent practice, they must be made when the manifestation and expression entities are implemented.

FRBR was created in part to solve an information overload problem for catalog users. Some works are represented in the catalog by so many records that users, including reference librarians and catalogers, cannot find what they are seeking. The majority of items crossing most catalogers' desks every day do not contribute to this particular overload problem. Because of this, early implementations of FRBR have been selective. Catalogers use taste and judgment to decide when to identify all four entities; for example, identifying every expression for every work may not be necessary. As Tillett put it on the FRBR electronic discussion list, "The work/expression levels could be merged when that makes sense for an application, or even merged with manifestation when that makes sense. . . ."²⁷ If cataloging software applications made cataloging each of the four entities as easy as cataloging one or two, selective implementation would not be needed.

To date, little to no user research has been published investigating the usefulness of catalog displays organized around the FRBR four-entity model. The user perspective has been incorporated into the model via the defined user tasks. The assumption is that basing the model on explicitly defined user tasks will facilitate use in catalogs that implement it. FRBR implementation models, as noted above, may look different. One source of difference is the way in which the model is implemented in the cataloging rules. Another source of difference is implementation in actual

catalogs. User research on which rules most facilitate use of the catalog, and what kind of displays are most effective, is highly desirable. Such research could guide the decision-making process surrounding the development of the new set of cataloging rules and the design of online catalog displays incorporating FRBR.

Conclusion

Viewing FRBR as a continuation and natural extension of cataloging models used over centuries of cataloging practice is important. All of the activities required to identify the Group 1 entities (determining work citation, transcribing information about translations and publishers, and creating holdings records) are activities that catalogers do now, every day, when they catalog. These activities will remain largely the same when FRBR is implemented, regardless of the precise nature of the implementation. The important changes that FRBR may bring are changes in cataloger consciousness and changes in online catalog displays. While AACR2 has always included the possibility of identifying works in the catalog, the current rules are somewhat obscure about how this is accomplished, and have made work identification optional.

The Joint Steering Committee for the Revision of the Anglo-American Cataloguing Rules has stated that the next revision of the rules, to be called Rules for Description and Access (RDA), will incorporate aspects of the FRBR model.²⁸ This new set of rules, incorporating FRBR entities, should make the process of identifying the particular entities that comprise a document much clearer for catalogers than it is now. This clarification also will make understanding why we do what we do easier, placing cataloger taste and judgment on a solid foundation. More importantly, successful implementations of FRBR will help catalog users perform successful searches by presenting information about complex works in helpful and intelligent ways.

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Quo Vadis, Preservation Education?

A Study of Current Trends and Future Needs in Graduate Programs

By Karen F. Gracy and Jean Ann Croft

This research study assesses preservation education provided by academic institutions in North America. Educators teaching preservation in graduate library and information science programs were surveyed about the type and number of courses offered, content of preservation coursework, faculty resources, future plans for curricula, fieldwork and internship opportunities in preservation, and postgraduate employment data. The investigators hypothesize that current preservation education within traditional library and archival studies programs does not provide adequate preparation in the areas of technical and managerial expertise to deal with the preservation of digital collections, audiovisual media, or visual materials. This paper reviews the literature pertinent to study of preservation education, describes the research methodology employed in designing and conducting the survey, presents the resulting data, and analyzes the trends revealed by the data in order to understand more fully the goals and objectives of preservation education during the last decade and to gauge future directions of the field. This paper concludes by presenting plans for further research, which will expand upon initial findings of this survey.

In the past twenty-five years, the field of preservation education has matured significantly from the watershed year of 1981, when the Conservation Education Program in the School of Library Service at Columbia University was established as the first conservation program to focus exclusively on library and archival materials. Tremendous progress has been made since 1981 in integrating conservation and preservation issues into the curricula of library and information science (LIS) programs. By 1994, Cloonan estimated that approximately thirty library schools in North America offered coursework in preservation.¹ This figure represented tremendous progress in the preservation education agenda, which, as articulated by Marcum in 1992, declared that the primary objective was to produce “a new generation of archivists and librarians who will enter the profession already understanding the centrality of preservation.”²

In the ten years since Cloonan surveyed the preservation education landscape, the LIS community has witnessed many changes in preservation program goals and concerns. The first major transition was the increased emphasis placed on digital reformatting as a tool in preservation work, accompanied by steadily growing concerns about how electronic resources thus created would be maintained. Digital preservation, a term not even common in 1992, entered

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the mainstream in the mid-1990s as the new crisis to be met and conquered, as the Web became integrated into the library and archival environments and produced increasing numbers of digitized and born-digital resources.

While the brittle books crisis had galvanized librarians, archivists, and conservators in the 1980s and 1990s to discover solutions to the slow fires (brittle paper) endangering paper-based library collections, the preservation community has yet to be given a magic bullet solution to the dilemmas of digital preservation. Whereas the preservation of paper-based media favors an object-based approach, preservation professionals who wish to preserve digital materials must focus on the information contained within electronic objects rather than the media upon which the information is recorded. Because digital objects require a complex environment of hardware and software for their information to be accessed, and because that environment is susceptible to obsolescence in an alarming short period of time, the physical and chemical stability of electronic recording media is of less importance than maintaining access to the information itself. Electronic information is enmeshed within a web of format specifications, encryption systems, and compression algorithms. Untangling information from this technical environment is not easy.

Digital preservation requires an entirely new skill set, involving the mastery of such concepts as:

- understanding the process of digitization; i.e., how the information contained within analog objects is affected by the transformation to digital form, and how one may judge the quality of that transformation;
- recognizing the need to represent information objects in an authentic manner through quality control and descriptive practices (metadata); and,
- learning how to ensure the longevity of large quantities of digital material through such strategies as copying, reformatting, migration, and emulation.

These digital competencies are complex enough to demand a separate course. The continuing education community has made attempts to address this gap by offering workshops in this area, but until recently its emphasis was primarily on transforming objects from analog to digital form rather than the maintenance of such material once digitized. One of the most well-known continuing education opportunities in digitization is the Northeast Document Conservation Center's (NEDCC) School for Scanning, which has been offered regularly since 1995.³ The preservation needs of born-digital material, such as electronic records, are still rarely discussed within continuing education workshops. Several field service programs, including NEDCC, Southeast Library Information Network

(SOLINET), and Amigos, have begun to offer workshops in preserving digital objects; however, the preservation of born-digital electronic records is still somewhat neglected. An exception is the Society of American Archivists' workshop, "Archival Perspectives on Digital Preservation," offered regularly since 2002 at its national conference and through its traveling workshop series. Finally, instructors have been hampered by the lack of case studies in the preservation of digital material. To the frustration of many librarians and archivists, digital preservation exists largely in a theoretical realm for most institutions.

Another area of increasing concern for preservation administrators is the presence of what has been referred to as non-book materials in library and archival collections. This category encompasses everything from photographic images, architectural drawings, and maps, to audiovisual material such as records, cassettes, reel-to-reel tapes, motion pictures, and videotapes. In 2001, the Association of Research Libraries (ARL) reported that its members collectively held more than sixty-four million objects that could be classified as visual materials (including photographs, pictures, maps, prints, slides, charts, posters, cartoons, engravings, and other graphic arts).⁴ In a 2004 study on audio collections in academic libraries, Smith, Allen, and Allen reported that a majority of ARL libraries have collections of more than 100,000 recorded sound objects, while most Oberlin libraries (a consortium of seventy-five leading liberal arts colleges) have collections that number more than 50,000.⁵ For moving images, similar collections in size and scope exist throughout United States research libraries and archives.⁶

Many of these items warrant immediate attention, as the formats upon which they are recorded are becoming obsolete and machines to play them are becoming scarce. Preservation educators often find that they cannot provide sufficient coverage of the preservation issues and challenges of these non-book media. Although some specialized programs have emerged to address the training needs of preservationists in these areas (particularly in the area of moving image preservation), and several workshops have been offered at professional conferences and by regional preservation field service programs, many libraries and archives still do not have easy access to such expertise.

With the ever-increasing amount of knowledge being required of preservation professionals in the areas of electronic media, visual materials, sound recordings, and moving images, the syllabi of preservation courses are becoming more and more populated with topics that were covered only superficially ten to fifteen years ago. Yet teaching preservation courses is becoming more difficult, because of the growing number of topics demanding attention.

Given the gaps addressed above, this study hypothesizes that current preservation education within traditional

library and archival studies programs does not provide adequate preparation in the areas of technical and managerial expertise to deal with the preservation of digital collections, audiovisual media, or visual materials. The investigators approached these problems as issues worthy of research, in order to document the current situation and place these issues on the national LIS educational agenda. Specifically, the investigators sought to address the following research questions:

1. What is the composition of the curricula at university-based degree programs and field service programs in preservation education? How has that curricula changed over the past decade?
2. How do educators plan to keep pace with new formats and technological advancements?
3. Do preservation educators provide students with the opportunity to put theory into practice? If so, how is this achieved?
4. What do preservation educators see as the key knowledge and values in preservation education? How are these values reflected in the curricula?

The following report summarizes the results of the research undertaken to find answers to these questions.

Review of Relevant Literature

Cloonan examined whether preservation as a field is declining.⁷ In 2001, she noted that:

the loss of preservation programs in some Association of Research Libraries (ARL) libraries and schools of library and information studies suggest that the field is withering when it should be blossoming. . . . At the same time, there is a continuing recognition of the importance of preservation throughout archives, museums, and libraries. This broad spectrum of interest should assure that it does not wither. New modes of collaboration present many possibilities as to whither preservation might go.⁸

Cloonan's observations about the continuing importance of preservation provided the impetus for this study, which focuses on the current state and future directions of preservation education. This survey of the literature briefly documents how education in the preservation field has changed during the last fifteen years. It reflects trends and reveals how educational programs have adapted to address the issues and challenges introduced by technological and philosophical change. It also shows how these modifications

have affected training in traditional preservation techniques for books, paper, audiovisual, and electronic media.

The Value of Preservation Education in the Library and Archival Communities

Outside of a few specialized programs in LIS schools, preservation education has developed somewhat unevenly in the library and archival communities. While archival educators have long stressed the importance of preservation and conservation within their curricula, archival practitioners do not appear to be as vocal about its centrality to the archive field as one might expect. The library arena experiences the reverse—library educators do not require preservation as part of their prospectus, but preservation professionals, particularly those working in academic library environments, actively promote continuing education efforts.

In 1989, the United Nations Educational, Scientific and Cultural Organization (UNESCO) supported research to ascertain training needs in preservation and conservation, and this study concluded that while the archives community deemed such courses as mandatory within their curricula, library educators often viewed preservation and conservation as a “comparative luxury.”⁹ This assertion came as a surprise to many preservation professionals, as the library community first commanded the spotlight in the preservation movement and cultivated their efforts into a recognized discipline. The archival community always has made the responsibility to preserve a central part of its mission. One may theorize that the emphasis on preservation in archival education emanated from its particular challenges, such as the multiplicity of formats and paper degradation, which are regularly encountered by archivists as part of the archival appraisal and processing procedures. Meanwhile, libraries struggle with the “tendency to concentrate on the whole of a question and use pre-established formulas to reach a single solution.”¹⁰ In addition, the variety of formats and media inherent to archival collections pose significant preservation challenges, which are compounded by the paucity of standards, treatments, and educational opportunities, especially for electronic records, visual materials, and audiovisual materials.¹¹ Kaplan and Banks state, “It is ironic that archivists have watched librarians capture the ‘preservation spotlight.’ It makes good sense for archivists to take a leadership role in preservation, because of the need to preserve unique materials, and because preservation is, after all, an expressly stated part of the archival mission.”¹² Perhaps leadership by those librarians who collaborated to create standards and selection criteria in hopes of devising a national plan for preserving brittle materials had the ultimate result of helping to affirm the value of preservation and conservation as a specialty within the library profession. Inconsistencies in preservation terminology between the library and archival

communities have compounded the dissonance between these two professions. Much work has been done, and continues to be done, to establish consensus in the preservation philosophy and vocabulary across the allied disciplines.¹³

Despite the strong influence of many practitioners on the development of the preservation profession, preservation education still does not form part of the core curriculum for many library and information science programs. One theory that may explain the lack of integration of preservation into all LIS programs is that many academics view preservation more as a collection of practical information and skills rather than a discipline grounded in theoretical knowledge and research. These educators also may view preservation needs as being better served by continuing education providers, rather than within a graduate school curriculum. The researchers plan to explore this in greater depth in a subsequent paper.

Audiovisual and Electronic Media

During the early 1990s, concern grew, especially among archivists, about audiovisual material preservation and the necessary training to teach these specialized skills. Reminiscent of Banks and his work in establishing conservation as a graduate-level study, audiovisual archivists have contended that training and education should occur in institutions of higher education, as workshops and seminars cannot adequately convey the theoretical knowledge, technical expertise, or scientific methods needed for certain jobs.¹⁴ The lack of international standards and practices, as well as the lack of agreement on a core body of knowledge to guide the development of curricula, further compound the challenges in training audiovisual archivists and librarians.¹⁵ With the establishment of the Association of Moving Image Archivists (AMIA) in 1991, these concerns coalesced into an international movement to foster graduate-level programs in moving image archiving and preservation. In the United States, the Library of Congress issued recommendations relating to film preservation that encouraged the moving image community to "create a systematic graduate program for educating new film preservation professionals and continuing education opportunities for those already in the field."¹⁶ Within a decade, three programs in moving image archiving were established in the United States: the L. Jeffrey Selznick School of Film Preservation at the George Eastman House (1996), the Moving Image Archival Studies program at the University of California, Los Angeles (2002), and the Moving Image Archiving and Preservation program at New York University (2003). In 2002, the University of Pittsburgh also began to offer a concentration in moving image preservation through its Preservation Management program, which is a specialty within the School of Information Sciences' MLIS curriculum.

While the development of moving image preservation education has matured significantly in the last decade, formal training in audio preservation lags far behind. A smattering of course offerings may be found in LIS programs and as occasional workshops at conferences, such as the Society of American Archivists and the Association of Recorded Sound Collections; however, the need for trained professionals in this area remains unmet. Recent reports from the Council on Library and Information Resources (CLIR) indicate a need for more sound preservationists, but the sound-archiving community has not yet pushed to develop standalone graduate education programs.¹⁷

Digital Dilemmas

In the 1990s, preservation again captured the spotlight in the LIS community as libraries and archives began to focus on the potential power of digitization as a reformatting option and its great potential to enhance access to collections.¹⁸ Education in an information environment requires an understanding of digital and preservation resources, which will help provide insight for grappling with library services of the future.¹⁹

In an effort to rebrand themselves as "I-schools," many LIS programs have abandoned the word "library," removing it from their names and the degrees offered in an attempt to focus on "information science" or "information studies," promoting the emergence of new technologies and education into "the nature of information itself and its societal function."²⁰ This development is a matter of some concern, as professional education serves to define and communicate the values of the profession.²¹ Unfortunately, this evolution seems to be happening at the expense of more traditional library offerings; courses teaching the "historical, technical, cultural and economic studies of the book and the methods of book production and supply, and the selection, arrangement, and storage of books in libraries" no longer constitute a primary component of the curricula.²² Accreditation and professional aspirations further impact conservation education, encouraging coursework concentrating on administration.²³ As evidence of the lower status of preservation in many of these retooled programs, adjunct professors, rather than full-time faculty, are the most likely people to teach preservation courses, and preservation plays a limited role in the core curriculum of most programs.²⁴ Another area of concern in preservation education is the lack of doctoral research undertaken in the preservation field resulting from the "predominantly practical approach to preservation."²⁵

The change in emphasis from providing grounding in specific institutional practice and service to particular constituencies, to the mastery of the management of information, in all its myriad forms, has many implications for preservation education. The demands of traditional paper

and document preservation must be balanced with the now-pressing concerns to preserve audiovisual and electronic media. These new imperatives should stimulate the development of the preservation curriculum and the hiring of full-time faculty to support such a curriculum, yet the current focus on information science and technology in LIS programs and the “withering field” to which Cloonan alludes suggest otherwise.²⁶

The LIS field seems to be placing undue emphasis on the creation and distribution of digital resources, subverting the original concerns and drives of the preservation agenda. The key document that illustrates the tension between the old and new attitudes toward preservation is the recent ARL position paper *Recognizing Digitization as a Preservation Reformatting Method*.²⁷ In this document, ARL put forth their endorsement of digitization as another preservation reformatting technique, outlining the benefits of digital technology and providing a list of best practices in the field.

The preservation field appears divided and conflicted when contemplating this topic. Adverse reactions to the ARL recommendations include concerns about economics and the level of commitment that digitization requires; hesitations in moving forward without concrete, universally accepted standards; comparisons of digitization projects specific for preservation purposes versus digitization for access and other purposes; and requests for more analysis from a risk perspective.²⁸ At the same time, some leading preservationists commend ARL for taking these steps, and offer praise and support in encouraging the library community to engage proactively in the digitization process, “making sure that the creation of the virtual library will support the values of our profession and the value of the objects in our care.”²⁹ Cunningham-Kruppa embraces the benefits that digital technology offers over microfilming, while Merrill-Oldham and Chapman view this call to action as an opportunity to make a concerted effort and commitment to promote standards and best practices.³⁰ Although ARL clearly supports digitization as a preservation reformatting method, the association does not claim that it should be the only method employed in preservation.³¹ This debate highlights the centrality of digital preservation concerns in the field. As the library and archival professions grapple with preservation in the digital realm, education must keep students in the thick of the debate.

As the preservation community refocuses attention to new challenges and agendas, it builds upon the impressive foundation of those ground-breaking preservationists and educators of the first generation. These innovators inspired the authors of this article to study the more recent trends and concerns of preservation education, particularly as its curriculum continues to be rewritten to address the new imperative of electronic media preservation and more adequately deal with the concerns of audiovisual preser-

vation. Thus, this research aims to thoroughly document current educational activities in the field of preservation and to give university and field service programs specific recommendations for directing educational endeavors into the next decade.

Research Method

This survey aims to analyze the extent of offerings found in formal library and information science degree programs and in continuing education sponsored by field service programs and other regional or local networks. Continuing education will be addressed in a subsequent paper. The survey also attempted to gauge preservation educators’ attitudes and views across the spectrum of preservation education in relation to such topics as breadth and depth of curricula, current resources to support teaching of preservation, and growth of the field.

Establishing a Working Population of Preservation Education Providers

This assessment of preservation education was directed toward academic institutions in North America. Recipients of the graduate education survey were identified in several ways. Initially, the investigators relied upon the most recent list of schools accredited by the American Library Association.³² This group did not include those institutions offering conservation education offerings in museum studies programs or other cognate fields. To make sure that no potential recipients were overlooked, a general call for participation also was sent out via several electronic discussion lists: the Preservation Administration Discussion Group, or PADG; jESSE (a list devoted to discussion of library and information science education issues); and the Forum for Archival Educators (a private electronic discussion list whose members are educators in archival studies programs).³³ The investigators also set up a Web site for individuals involved in preservation education to request a survey.³⁴ Finally, an announcement was published in October 2003 issue of the *Abbey Newsletter*, a periodical devoted to current news and developments in library and archival preservation.³⁵ When multiple responses were received from the same institution, the researchers compared responses and selected the most reliable.

To encourage participation, survey recipients were assured of the confidentiality of their responses. Because of this requirement, the investigators were sometimes required to aggregate data in order to maintain the confidentiality of participants despite the small size of the working population and the sample taken from it.

Development of the Survey Instrument and Analysis of Resulting Data

The survey (see appendix) was sent to academic institutions, usually to the dean or director of master's programs, but also to course instructors themselves if they requested it. The investigators asked questions dealing with the following topics:

- type and number of courses offered;
- frequency of course offerings;
- enrollment statistics;
- presence or absence of preservation specialization as part of degree program;
- content of preservation coursework;
- incorporation of preservation into related coursework;
- faculty resources;
- future plans for curricula;
- fieldwork/internship opportunities in preservation; and
- postgraduate employment data.

To standardize coding and subsequent analysis of data, the surveys used checkboxes wherever possible, and refrained from open-ended questions as much as possible. Where participants were asked to fill in answers (for example, "list each preservation course offered"), the investigators created nominal coding categories to aggregate data.

To analyze the data, the investigators used a standard statistical analysis package, SPSS, for all survey data entry and analysis. The primary analysis used was frequency distribution; these data are presented in tabular form, with discussion accompanying each table.

Potential Sources of Bias

The investigators see several potential sources of bias in this research. First, the data may be slanted toward those individuals who are predisposed to participate in surveys. The response rate indicates that individuals from schools where preservation is actively supported were more likely to complete and return the survey than those from schools where preservation is infrequently or never taught.

Second, answers to certain questions about future plans in hiring and curriculum should be treated somewhat cautiously. Respondents who were not full-time employees of an institution or organization may not have had a complete understanding of the current situation vis-à-vis hiring or curriculum revision. Additionally, some institutions may be wary about revealing plans in this area (despite assurances of anonymity) for fear of being seen as making a firm commitment to the hire of new faculty or instructors or both, or offering new coursework.

The most significant potential bias of this research concerns truthfulness in reporting data. For the questions that asked respondents to provide hard numbers (such as enrollment figures for a five-year span, or the number of graduates who specialized in preservation during that same period), several participants indicated that the numbers that they were providing were estimates or guesses as they had not kept good records of such data. Thus the authors exercised extreme caution in interpreting these statistics, with the understanding that they may not be exact representations of the phenomenon being measured.

Findings and Discussion

In total, 64 surveys were sent to potential participants; this list consisted of educators identified through the initial compilation of the working population (as detailed above) as well as individuals who requested it via electronic mail. Recipients who did not respond to the call to participate were sent a reminder after six weeks; a second reminder was sent at twelve weeks after the initial contact to those who still had not responded. After three attempts at contact, the data collection period was considered closed.

The research team received a total of 43 completed surveys from academic institutions. This figure was reduced, however, due to the removal of duplicate responses; investigators accepted only one response from each school. Once duplicates were removed, 41 useable surveys remained. The response rate was calculated as 71.9 percent (numbers do not include surveys removed for the reasons noted above). This rate offers some reassurance that the investigators may rely on the results to be statistically accurate. The extremely small population size in question leads them to be very cautious, however, in interpreting results and their potential implications.

Survey Responses

Readers are invited to consult the appendix to examine the survey instrument; the report uses the abbreviation "Q" followed by the question number to indicate from which question the data are drawn (thus, Q1 refers to Question 1).

Types of Courses and Frequency of Course Offerings

Out of the 41 useable surveys, 32 of the respondents (78 percent) indicated that they offer coursework on preservation or conservation of library and archival materials, or both (Q1). This figure compares favorably to the figure cited by Cloonan in 1994, at which time she estimated that 30 schools offered one or more electives in preservation.³⁶ Of

those 32 schools currently offering preservation, however, almost 60 percent (19) offer only 1 course (usually an introductory survey course). Seven schools (21.9 percent) offer 2 courses, 4 schools (12.5 percent) offer 3 courses, and only 2 schools (6.3 percent) offer more than 3 courses (Q2).

Educators also were asked to list each preservation course offered at their institution, providing the course title, the frequency with which it is offered, and the enrollment statistics over the last five years, 1999–2003 (Q3). For the purposes of making this data more comprehensible, the researchers aggregated the data gathered in this section of the survey into the following categories:

- introductory survey;
- preservation management;
- digital preservation;
- photograph/audiovisual preservation;
- conservation (“hands-on” courses); and
- other “advanced topics” in preservation.

When it was not apparent into which category a class would fall, the investigators examined the course description on the institution’s Web site, when available. The dividing line between introductory survey courses and more advanced management courses was the most difficult to draw; in cases where the research team was unsure, they erred on the side of coding it as an introductory course. Table 1 summarizes the frequency with which preservation courses are offered in LIS programs.

LIS master’s programs focus primarily on offering a survey course once a year. Few schools give more advanced offerings in preservation, with several notable exceptions. Preservation management and digital preservation are the most likely candidates to be offered as advanced electives; photograph and audiovisual preservation courses are beginning to be offered in a small number of schools, while comparatively fewer schools offer conservation courses (defined as having a laboratory component). The small number of conservation courses may be related to a lack of available laboratory facilities at many LIS programs.

Enrollment in Preservation Coursework

Enrollment in LIS program preservation courses shows some growth in the last five years, particularly in the areas of introductory courses, digital preservation, and photographic and audiovisual preservation (see table 2). The encouraging upward trends in preservation enrollment must be seen in the light of the larger picture, which is the overall enrollment in MLIS programs over the same period. The Association of Library and Information Science Education (ALISE) reports that between 1999 and 2003, enrollment in MLIS programs rose significantly: from 11,241 in 1999 to 16,876 in 2003.³⁷ Over a five-year period, MLIS enrollment increased 50 percent, while enrollment in basic preservation courses increased 66 percent, and the number of students in preservation management courses rose by 120 percent. Clearly, interest in preservation is keeping pace with the rise in the number of MLIS students.

Enrollment in electronic and audiovisual preservation courses shows steady increases over the five-year period, while the number of students enrolled in conservation has shown a small surge that was not maintained (the investigators interpret these numbers as essentially showing no real growth). Enrollment in other advanced preservation coursework (such as those focusing on technology, reformatting, and other current issues) has grown, but the number of courses and total number of students is so small that these data cannot be interpreted as an overall trend of the field.

Table 3 summarizes the number of preservation courses offered over the five-year period of 1999–2003 and gives the total number of students (both broken down by basic type of course). This table represents a different snapshot of the data, examining the average (mean) number of students enrolled in different courses. The average number of students enrolled in more advanced courses decreases significantly from the average of the introductory and management courses. Interestingly, only 7 schools offer a separate course in preservation management; however, the researchers suspect that many introductory preservation courses now emphasize a managerial approach and per-

Table 1. Frequency of preservation courses offered by LIS schools, by topic (*N* varies)

Type of course	Annually	Biannually	More than once a year	Irregular or unspecified frequency	Total number of schools
Introductory survey	17	5	2	3	27
Preservation management	4	1	2	0	7
Digital preservation	5	0	0	2	7
Photograph audiovisual preservation	4	0	1	0	5
Conservation (“hands-on” courses)	0	0	3	0	3
Advanced topics in preservation	2	0	1	0	3

Note: Data represent number of schools offering a type of preservation course with a particular frequency.

spective. The mean number of students enrolled in conservation is quite low; the intensive hands-on nature of most conservation courses requires a small student-to-teacher ratio and is not a cause for concern.

Digital preservation enrollment shows a promising increase over the five-year period, indicating that interest in this area is developing quickly, yet fewer than 1 percent of all MLIS students have had in-depth exposure to critical issues of digital preservation. The investigators consider the paucity of course offerings in digital preservation as a source of concern for all MLIS programs. The field will need students to have a basic grounding in this area as they build and administer digital libraries and recordkeeping systems.

Preservation Specializations and Job Placement

Only 5 schools report offering a separate specialization in preservation management (Q4). These figures include only students focusing on preservation administration, not conservation training (which is a separate track and requires significantly more background in paper chemistry and materials science, and additional training in repair, binding, and treatments). Over the past five years, 42 students have graduated with specializations in this area (Q5).

Table 2. Enrollment statistics in preservation courses, 1999–2003 (broken down by year, *N* varies)

Type of course	1999	2000	2001	2002	2003	Total (1999–2003)
Introductory courses (<i>N</i> = 27)	300	404	366	422	502	1,994
Preservation management (<i>N</i> =7)	87	137	117	195	192	728
Digital preservation/electronic records management (<i>N</i> =7)	52	85	90	88	134	449
Photograph/audiovisual preservation (<i>N</i> =5)	0	17	39	23	79	158
Conservation (hands-on courses) (<i>N</i> =3)	62	82	98	67	72	381
Advanced topics in preservation (<i>N</i> =3)	6	6	17	34	45	108
Total preservation enrollment, by year	507	731	727	829	1,024	3,818

In the past two years, the number of such students has grown significantly—doubling in 2002–2003, and tripling in 2003–2004—due to the revitalization of the preservation management program at one LIS program, and an increase in interest at other schools. Similarly, the investigators found that there were few opportunities for postgraduate certificates of advanced study in preservation; only 4 schools presently offer this opportunity, overlapping with the schools that offer MLIS study (CAS) in preservation. The number of students completing a CAS has been small—29 students over the last five years, with 1 school graduating 18 of those 29 certificate recipients (Q8, Q9). This data suggests that preservation is still seen largely as a niche to be filled by a few schools, rather than a specialization of wide appeal to all MLIS programs.

Table 3. Number of preservation course offerings, 1999–2003 (*N* varies)

Type of course	Total no. of courses offered, 1999–2003	Total no. of students enrolled, 1999–2003	Mean no. of students per course
Introductory courses (<i>N</i> =27)	81	1,994	24.6
Preservation management (<i>N</i> =7)	27	728	27.0
Digital preservation (<i>N</i> =7)	22	449	20.4
Photograph/audiovisual preservation (<i>N</i> =5)	10	158	15.8
Conservation (hands-on courses) (<i>N</i> =3)	56	381	6.8
Advanced topics in preservation (<i>N</i> =3)	10	108	10.8
Total	164	3,818	23.3

Comparing this data to information about job placement—for example, how many of these graduates were placed in positions where their primary responsibility was in the area of preservation—would be interesting. Unfortunately, many survey respondents indicated that such data have not been collected at their schools, thus the researchers are unable to determine how successful graduates have been in securing jobs in preservation management (Q30, Q31).

Despite the small number of opportunities for specializing in preservation, the study found that preservation is a key component of other areas of study. Nineteen (59.4 percent) of 32 schools responding to the question, “Is preservation a required or recommended course for particular tracks or specializations (other than conservation or preservation)?” indicated that preservation was either required or recommended (Q6) (see table 4).

Archives and records management is the specialization most likely to require or recommend preservation (8 schools require preservation and 4 schools recommend it for their archives curriculum) (Q7). Preservation also was cited as a required or recommended course for specializations in academic libraries (1 school recommends it), digital libraries (2 schools require it), and rare books and special collections (2 schools recommend it). Because preservation impacts the work of almost every department in a library or archive, many schools recommend that students have some basic familiarity with preservation concepts. Students often do not realize the full importance of preservation knowledge until they are working in the field. Thus, many MLIS graduates seek out continuing education opportunities in preservation after entering the workforce.

Faculty Resources

Preservation courses are taught mostly by part-time faculty drawn from the ranks of the profession; i.e., preservation administrators and conservators who work in a local institution (most often within the library system of the university). Eighteen faculty (27.7 percent) teach full-time as tenure-track or tenured professors, 5 faculty (7.7 percent) teach full-time on a contract basis as nontenured lecturers, while the remaining two-thirds of the preservation faculty (64.6 percent) consists of professionals teaching as adjuncts rather than full-time faculty members (Q17). The number of full-time, tenure-track faculty who teach preservation is somewhat misleading, as many who teach in this area also are responsible for other areas, such as archives, special collections, and technical services. One must conjecture that the number of faculty who consider preservation to be their primary teaching and research area is smaller than the reported 18. When asked, “Are your preservation courses usually taught by full-time or part-time (adjunct) faculty?” one can see that the reliance on part-time faculty is even more pronounced (Q16):

- five schools use full-time faculty exclusively (15.6 percent);
- twenty schools use part-time faculty exclusively (62.5 percent); and
- seven schools use a combination of full- and part-time faculty (21.9 percent).

The investigators see a connection between the number of full-time faculty members whose specialty is preservation and the number of schools that offer a specialization in preservation. The small number of preservation faculty directly correlates to the availability of preservation specializations,

as part-time instructors are rarely given the opportunity to develop tracks within a curriculum.

Preservation instructors are most likely to have a master's degree in LIS or a related field (Q18). Thirty-eight faculty members hold a master's degree, 13 obtained certificates of advanced study in preservation administration or conservation, 23 earned Ph.D.'s, and 3 list other degrees or credentials (such as certified archivist or certification in hand book-binding). Most instructors

Table 4. Specializations that require or recommend preservation

Type of specialization	No. of schools requiring preservation	No. of schools recommending preservation	No. of schools not specifying required or recommended	Total
Academic libraries	0	1	0	1
Archival Studies degree/certificate programs	4	1	1	6
Archival Studies specializations	4	3	1	8
Digital libraries/electronic information	2	0	0	2
MLIS degree programs (when school offers multiple information-related degrees)	0	2	0	2
Rare books/special collections	0	2	0	2
Total	10	9	2	21

of preservation courses are part-time instructors drawn from the profession; that they are most likely to have professional credentials rather than research credentials is not surprising.

Only 5 schools out of 41 surveyed (12.2 percent) reported that they had firm plans to hire additional faculty in the area of preservation (Q19). All 5 respondents indicated that they would like to hire full-time, tenure-track faculty. Other choices were: full-time, non-tenure-track (lecturer or instructor), or part-time (adjunct) instructor (Q20). The other 36 schools that indicated that they had no immediate plans to make a hire in preservation chose the following reasons (some respondents chose more than one response) (Q21):

- meeting preservation needs at this time with current staffing (16 schools, 44.4 percent);
- preservation is not a strength of this program (8 schools, 22.2 percent); or
- fiscal resources do not allow a hire (10 schools, 27.8 percent).

Those indicating “other reasons” (7 schools, 19.4 percent) explained their responses in the following ways:

- “We are looking at adding a course eventually using faculty now in place.”
- “We would like to hire another archives-related faculty who may have preservation expertise—but that wouldn’t necessarily be a priority.”
- “Another program in the city and yet another in the state cover this—we’re too small to repeat their work.”
- “The enrollment figures have increased considerably in the last three years. We are looking at increasing the resources in the area of archives in general.”
- “We are redesigning our archives/records management and preservation courses and don’t know yet whether we will be adding faculty.”

The data suggest that most LIS programs are not placing preservation as a high priority or are unwilling to make a firm commitment to this area at this time. The investigators see an interesting parallel between the preservation area and the archives specialty, in terms of the reluctance to commit new resources to growing these areas.³⁸ While much of this hesitancy may be related to genuine concern over lack of resources, they also recognize the possibility that tracks in digital libraries and information technology are seen by many schools to be of the highest priority (particularly those aforementioned schools that have rechristened themselves as “I-schools”).

The Preservation Curriculum

The survey asked respondents to indicate the content of their preservation courses by putting an “x” next to each

topic listed on the survey (they also could write in topics not listed) (Q10) (see table 5). The investigators found that most preservation courses are very ambitious in scope, as evidenced by the high number of affirmative responses to each topic. Other topics mentioned included preservation research; preservation strategies; security; and insurance coverage, risk management, and liability. Other formats mentioned included “electronic media preservation,” museum objects, and “clay tablets, papyri, vellum, etc.”

Because of concerns about the survey’s length, the investigators did not ask respondents to indicate the depth of treatment afforded each topic. The data suggest that faculty continue to add topics in their courses in response to the increasing number of formats for which librarians and archivists are responsible. A comparison of this list of topics to the one compiled by Cloonan in 1994 shows that current preservation courses cover much more ground than those of just a decade ago.³⁹ While Cloonan’s list does not mention specific formats, the assumption that preservation administrators would be dealing primarily with paper-based media is evident in many of the topics, which mention such activities as “library binding and contracting for services,” “flattening paper,” and “deciphering faded documents.”⁴⁰ Electronic media are not objects needing preservation, but are seen as potential tools for reformatting. The preservation course of today can no longer assume that students will be working in a book-and-paper world, and its syllabus has swelled to contain these new media.

Educators have cause for concern over how much time can be spent on each topic—one could assume that some topics are only given cursory attention, whereas others are explored in more depth. A 2005 study by Bastian and Yakel provides information on how much time is spent on different topics.⁴¹

Preservation has been integrated into a number of other courses in LIS programs. Instructors teaching archives and manuscripts, collection development, or records management were most likely to have integrated preservation topics into their syllabi (Q11) (see table 6). Other courses mentioned as including preservation topics were management, “information in society,” government information resources, organization of information, individual study, and film studies courses. Only one-third of LIS schools responding to this question indicated that they integrate preservation into their foundational course, while three-quarters of archives and manuscript course offerings and one-half of collection management courses do so. These figures reinforce the trend discussed in the review of the literature, which indicates that archival educators are more likely to emphasize the importance of preservation in archival courses than other LIS educators in other parts of the LIS curriculum.

The survey asked respondents to list related courses that include preservation as a significant component (defined as

Table 5. Topics covered in preservation courses (*N*=32)

Topic or Format Covered?	Yes		No	
	No.	%	No.	%
History and theory of conservation and preservation	30	93.8	2	6.3
Ethics of conservation and preservation	28	87.5	4	12.5
Conservation science (including materials deterioration)	26	81.3	6	18.8
Book repair and rebinding (including hands-on practice)	22	68.8	10	31.3
Conservation treatments	29	90.6	3	9.4
Enclosures and housing	28	87.5	4	12.5
Reformatting options (microfilming, photocopying, digitization)	29	90.6	3	9.4
Control of environmental conditions (temperature, relative humidity, air quality, pest management)	30	93.8	2	6.3
Preservation assessment (surveying and policy recommendations)	29	90.6	3	9.4
Management (personnel, fiscal, facilities)	27	84.4	5	15.6
Emergency preparedness and disaster recovery	30	93.8	2	6.3
Staff and user education	25	78.1	7	21.9
Other topics	3	9.4	29	90.6
Paper-based media (books and documents)	32	100.0	0	0.0
Photographic media	29	90.6	3	9.4
Audiovisual media (sound recordings and moving images)	27	84.4	5	15.6
Magnetic and optical media (removable storage media)	24	75.0	8	25.0
Electronic records	26	81.3	6	18.8
Digital library objects (both digitized and "born digital")	23	71.9	9	28.1
Other formats	2	6.3	30	93.8

spending at least 10 percent of class time discussing preservation issues) and estimate the percentage of time spent on preservation (Q12). Sixteen schools out of 32 respondents (50 percent) reported that they had courses with significant preservation content. The information has been summarized using the categories shown in table 7. Although the

data that were obtained for this question are interesting, only a small number of schools chose to answer this question. The insufficient number of responses makes drawing conclusions difficult.

The survey also asked about the availability of related courses in other schools and departments of the university that may pertain to preservation or conservation studies (Q13) (see table 8). Out of 32 responses, 9 schools (28.1 percent) responded "yes," 21 schools (65.6 percent) responded "no" or left the question unanswered, and 2 schools (6.3 percent) indicated that they were "not sure." The 9 schools that responded affirmatively provided course titles, which have been summarized into disciplinary areas. The investigators find the results of this question to be of particular interest, as several schools apparently do not acknowledge the existence of other preservation-related courses outside of their school's offering. Yet, many larger universities do, in fact, offer related coursework, which faculty may discover if they do a bit of research into the university's course catalog to determine the presence of these other opportunities. Unfortunately, the potential for building preservation specializations using resources of other departments remains largely untapped at this time.

Six schools (19.4 percent) out of 31 respondents reported offering continuing education courses in preservation to working professionals in the field (Q14). Table 9 summarizes the topics cited by respondents (Q15). Given the data gathered by this survey, most LIS schools are not sources for continuing education in preservation at this time. Anecdotal evidence suggests that many continuing education workshops offered through universities have been either heavily reliant on grant funding or must be sustained through enrollment fees, which may partially explain why few universities regularly offer continuing education opportunities in this area.

Out of 41 responses to the question, "Do students have the opportunity to earn course credits for completing an internship or field placement in preservation work?" 32 schools (78 percent) indicated in the affirmative (Q25). For LIS programs that offer a specialization in preservation, all 5 require practical experience through

internships or fieldwork (Q26). The investigators see this requirement as an indication that, in the field of preservation, practical experience is seen as being a necessary prerequisite for obtaining an entry-level position.

Thirty-two (78 percent) out of 41 schools report that their university's library system offers internship opportunities (Q27). Departments that often host interns include the following: archives (11; 34.4 percent); rare books and special collections (13; 40.6 percent); digitization and digital libraries (3; 9.4 percent); preservation, conservation, and book repair (10; 31.3 percent); reference (1; 3.1 percent); remote storage facility (1; 3.1 percent); technical services (4; 12.5 percent); and no department specified (13; 40.6 percent). The investigators suspect that a number of the respondents misinterpreted this question to apply to all students and internship sites, rather than those focused specifically on preservation work (hence the reporting of the reference department and the large number of respondents who did not indicate a particular department). Thus, the investigators are reluctant to draw any conclusions from this data other than to note that archives, special collections, and preservation departments are the most likely sites to welcome preservation students.

From the data collected, the researchers surmise that internships are widely available outside the university library system. Forty-one schools responded to the question, "What type of sites (external to the institution) host preservation interns?" (Q28). Responses include: libraries (30; 73.2 percent); archives (32; 78 percent); museums (17; 41.5 percent); historical societies (15; 36.6 percent); commercial vendors (3; 7.3 percent), and other sites (3; 7.3 percent). Under the "other" category, respondents listed "Combination archives/museum,"

Table 6. Preservation integrated into other courses? (*N*=32)

Other courses	Schools integrating preservation into course	
	No.	%
Introduction to librarianship/information studies core course	10	31.3
Archives and manuscripts	24	75.0
Rare books librarianship	9	28.1
Map librarianship	1	3.1
Special collections	10	31.3
Collections management/development	16	50.0
Digital libraries	14	43.8
Records management (including electronic records management)	17	53.1
Technical services (including serials)	5	15.6
Other	3	9.4

Table 7. Related courses that incorporate preservation topics (*N* varies)

Type of course	No. of schools reporting preservation as part of related coursework	Average % of time (mean) spent on preservation topics
Foundations of librarianship/information studies	2	16.0
Archives and records management	11	14.2
Electronic records management	3	21.7
Rare books/special collections	3	11.7
Technical services	3	10.7
Collection development	1	10.0
Digital libraries	2	10.0
Other coursework (doctoral-level seminar)	1	15.0

Table 8. Preservation-related courses in other schools and departments (*N* varies)

Department	Number of Schools Reporting Courses
Art history/art conservation	4
Anthropology	2
Bookbinding	2
Cultural studies/ethnic studies	2
Human ecology (including textile conservation)	2
Museum studies	2
Multimedia production	1
Art history/art conservation	4
Anthropology	2
Bookbinding	2

Table 9. Continuing education courses in preservation offered through LIS programs (*N*=6)

Course topics	No. of schools offering topic	Frequency	Enrollment in courses on this topic, 1999–2003
Book history	1	More than once a year	55 ¹
Archives	1	More than once a year	50 ²
Conservation/book repair	3	More than once a year (2 schools); Not specified (1)	161
Digitization and digital libraries	3	Not specified	65 ³
Disaster planning	1	Every other year	25 ⁴
Electronic records	1	Not specified	33 ⁵
Library facilities	1	Not specified	29 ⁶
Preservation management	1	Every other year	53 ⁷

1. Missing 2003 figures.

2. 2003 figures only.

3. Figures for 2001, 2002, and 2003 only.

4. Figures for 2000 and 2002 only.

5. Figures for 2000 and 2002 only.

6. Figures for 2000 and 2003 only.

7. Figures for 1999, 2001, and 2003 only.

a local public television station, and corporate libraries and archives. Apparently, many LIS programs encourage students interested in preservation to continue their education through an internship; most schools offer little in the way of advanced electives in this area. While the importance of learning skills and techniques in a practitioner environment is undeniable, practical skills must be balanced with a more theoretical orientation to the profession. Internships alone cannot provide this professional knowledge.

Internships and fieldwork are largely unpaid. Out of 40 responses to a question about the percentage of internship sites that offer remuneration, 29 reported that none of the sites offered financial compensation (Q29). Two schools reported that 100 percent of their internship sites offer wages to students, with the other 9 schools reporting anywhere from 1 percent to 95 percent. The responses are unclear if respondents refer specifically to preservation internship sites or to all internship sites. Thus, the investigators are unable to draw any conclusions about the existence of compensated preservation internships.

Thirteen schools out of 41 surveyed (31.7 percent) indicated a desire to enhance their current curriculum with additional offerings in the area of preservation (Q22). Subjects seen as potential new courses include (respondents could mark more than one choice):

- introductory course in preservation history (3; 27.3 percent);
- collections conservation laboratory (3; 27.3 percent);

- reformatting (4; 36.4 percent);
- fieldwork or internships (4; 36.4 percent);
- photographic media (1; 9.1 percent);
- digital preservation (6; 54.5 percent); and
- other courses (4; 36.4 percent).

Other courses mentioned included “Practicum work full-time in our conservation lab,” preservation ethics, and management of cultural heritage collections. Reformatting and digital preservation seemed to generate the most interest, which is unsurprising given the current focus on building digital libraries both in the profession and as a growing trend in LIS education. Although the survey asked respondents to indicate the year that they planned on offering such courses, few respondents did so, thus the investigators are unable to report results on that part of the question.

The other 28 schools (68.3 percent) showed no interest in adding additional coursework in the area of preservation (Q24). The reasons cited for not offering additional courses included the following (some respondents chose more than one response):

- preservation discussed sufficiently in other courses (15; 53.6 percent);
- lack of perceived interest by students (2; 7.1 percent);
- lack of available expertise of current faculty (5; 17.9 percent); and
- lack of fiscal resources (10; 35.7 percent).

Other reasons (3; 10.7 percent):

- “We are federated with a program that covers this—no need to duplicate.”
- “We plan to move slowly, will be looking at a digitization course, but may not be ready to add it in 1–3 years.”

Many schools feel that preservation is already sufficiently covered by current course offerings, while a lack of fiscal resources is the other main limitation. The lack of available expertise may be closely related to the lack of fiscal resources, as well. The investigators find the “already sufficiently discussed” reasoning to be curious, considering the high number of LIS schools that currently lack advanced electives in areas of need such as digital preservation.

Conclusion

Data from this study reveal tantalizing pieces of the preservation education landscape. While investigators noticed several potentially encouraging trends, such as continued interest in preservation through steadily increasing enrollment figures, other data show that institutions, particularly in higher education, are not ready to make a commitment of resources (through new courses or faculty hires) to grow preservation beyond its current coverage in library schools. The authors suspect that continuing education is picking up much of the slack that LIS programs are creating, offering programs on multiple topics not given sufficient coverage at the graduate level. Preservation education in the areas of electronic resources, visual materials, and audiovisual resources appears to be in short supply at the graduate level.

The investigators found that the data generated from this study answered many of the questions raised about the who, what, when, and where of preservation education, but did not sufficiently capture the underlying explanations of certain phenomena. For example, why has the increased scope of preservation in the last decade not resulted in significantly increased course offerings and additional faculty resources? Why is preservation still not considered to be a core knowledge area by many LIS schools? Why has the development of preservation education stalled at the level of establishing basic professional skills and competencies, while not addressing the need to develop a theoretical foundation to support research and scholarly agendas, which would sustain the field over the long term?

The investigators feel that these sorts of questions are best addressed using another methodological approach, ideally a qualitative one. Thus this study represents the first phase of a larger research project. Building upon the initial results of the survey, the investigators plan to follow up with

in-depth interviews of key informants involved in preservation education at selected sites. After analyzing the interview data and comparing those results to those of the survey, the investigators hope to have a more complete picture of the state of preservation education in North America, which will be used to create recommendations for directing preservation education in the next decade.

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Appendix: Survey Instrument

Preservation Education Needs for the Next Generation of Information Professionals Survey for Educators Teaching Preservation Coursework for College and University Degree Programs

Types of Courses/Frequency Offered

1. Does your institution offer coursework on preservation and/or conservation of library/archival materials?
☐ Yes (go to next question)
☐ No (go to question 19)
2. How many courses do you offer on preservation of library/archival materials? Do not include courses that merely incorporate preservation as part of a related topic (such as archives or collection development) unless preservation issues constitute at least one-third of the material covered.
☐ 1
☐ 2
☐ 3
☐ More than 3
3. List each preservation course offered, and indicate the regularity with which it is offered. Also indicate its enrollment over the last five years, broken down by years. Attach additional sheets as necessary.

Course Title	Frequency	Enrollment over the Last Five Years
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:

Preservation and Specializations

4. Does your institution offer students a preservation track/specialization?
 _____ Yes (go to next question)
 _____ No (go to question 6)
5. If yes, how many students have elected to specialize in preservation in the last five years?
 2003-2004 academic year: _____
 2002-2003 academic year: _____
 2001-2002 academic year: _____
 2000-2001 academic year: _____
 1999-2000 academic year: _____
6. Is preservation a required or recommended course for particular tracks or specializations
 _____ Yes (go to next question)
 _____ No (go to question 8)
7. If yes, please list specialization(s) where preservation coursework is recommended or required:
 _____ Required? _____ Recommended? _____
 _____ Required? _____ Recommended? _____
 _____ Required? _____ Recommended? _____
8. Does your institution offer students a post-bachelor's or post-master's certificate in preservation?
 _____ Yes (go to next question)
 _____ No (go to question 10)
9. If yes, how many students have elected to obtain a certificate in preservation in the last five years?
 2003: _____
 2002: _____
 2001: _____
 2000: _____
 1999: _____

Content of Preservation/Conservation Coursework

10. What issues are covered in preservation coursework? Check all that apply.
 _____ History and theory of conservation/preservation
 _____ Ethics of conservation/preservation
 _____ Conservation science (including materials deterioration)
- Topics:*
 _____ Book repair and rebinding (including hands-on practice)
 _____ Conservation treatments
 _____ Enclosures and housing
 _____ Reformatting options (microfilming, photocopying, digitization)
 _____ Control of environmental conditions (temperature, relative humidity, air quality, pest management)

- ☐ Preservation assessment (surveying and policy recommendations)
☐ Management (personnel, fiscal, facilities)
☐ Emergency preparedness and disaster recovery
☐ Staff and user education
☐ Other: _____

Formats:

- ☐ Paper-based media (books and documents)
☐ Photographic media
☐ Audiovisual media (sound recordings and moving images)
☐ Magnetic and optical media (removable storage media)
☐ Electronic records
☐ Digital library objects (both digitized and "born digital")
☐ Other: _____

Related Coursework

11. Into what other coursework do you incorporate preservation? Please check all that apply.
- ☐ Introduction to librarianship/information studies core course
☐ Archives and manuscripts
☐ Rare books librarianship
☐ Map librarianship
☐ Special collections
☐ Collections management/development
☐ Digital libraries
☐ Records management (including electronic records management)
☐ Technical services (including serials)
☐ Other: _____
12. Please list any related courses that include preservation as a significant component (defined as spending at least 10 percent of class time discussing preservation issues).

Course Title	Percentage of Course Devoted to Preservation Issues

13. Are there any courses in other departments of the university that relate to preservation or conservation (such as chemistry, engineering, anthropology, archaeology, art, art history, film studies, architecture). Please list any relevant courses below.

Continuing Education

14. Do you offer any continuing education courses in preservation to working professionals in the field?
- _____ Yes (go to next question)
- _____ No (go to question 16)
15. Please list any continuing education courses offered in the area of preservation, and indicate the regularity with which they are offered. Also indicate enrollment over the last five years, broken down by years.

Course Title	Frequency	Enrollment over the Last Five Years
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:
		2003: 2002: 2001: 2000: 1999:

Faculty Resources

16. Are your preservation courses usually taught by full-time or part-time (adjunct) faculty?
- _____ Full-time
- _____ Part-time (adjunct)
- _____ Combination of full-time and part-time faculty
17. Fill in the blanks with the number of instructors teaching in the area of preservation at your institution or organization. Do not include faculty who merely incorporate preservation as part of a related topic (such as archives or collection development).
- _____ Full-time, tenure-track/tenured (assistant, associate, or full professor)
- _____ Full-time, non-tenure-track (lecturer/instructor)
- _____ Adjunct (part-time) instructor
18. How many faculty members noted in question 17 hold:
- (Note: The total number of degrees reported here may be greater than the total number of faculty reported in question 17).

- ☐ A professional-level master's degree?
☐ A certificate of advanced study in conservation or preservation?
☐ A Ph.D. degree?
☐ Another degree or certification (please list types: _____)?
19. Do you have any plans to hire additional faculty in the area of preservation?
- ☐ Yes (go to next question)
☐ No (go to question 21)
20. If yes, what type of position would be offered?
- ☐ Full-time, tenure-track/tenured position (assistant, associate, or full professor)
☐ Full-time, non-tenure track position (lecturer/instructor)
☐ Part-time instructor (adjunct)
- Go to question 22.
21. If no, why not?
- ☐ We are meeting our preservation education needs at this time with current staffing levels.
☐ Preservation is not a "strength" of this program and we are not interesting in developing expertise in this area.
☐ We would like to hire in the area of preservation, but fiscal resources do not allow a hire at this time.
☐ Other: _____

Future Plans for Curricula

22. Does your institution plan to introduce new preservation coursework in the near future (1-3 years)?
- ☐ Yes (go to next question)
☐ No (go to question 24)
23. If yes, please indicate what type(s) of course(s) will be offered and when you hope to offer it (them):
- Year Type of Course
- ☐ Introductory course in preservation
☐ Collections conservation laboratory (book repair, rebinding, deacidification, other treatments)
☐ Reformatting (microfilming, copying, digitization)
☐ Fieldwork/internship (placement in an archive, library, rare book collection, etc.)
- Specialized preservation seminars in:*
- ☐ Photographic media
☐ Visual materials (architectural drawings, maps, prints, etc.)
☐ Audiovisual media (sound recordings, moving images)
☐ Digital preservation (electronic records and other digital media)
☐ Other: _____

Go to question 25.

24. If no, why not?
- ☐ Preservation felt to be discussed sufficiently in core courses or elective courses on related topics (e.g., archives coursework)

- ☐ Lack of perceived interest by students
☐ Lack of available expertise of current faculty
☐ Lack of fiscal resources
☐ Other: _____

Fieldwork/Internship Opportunities

25. Do students have the opportunity to earn course credits for completing an internship or field placement in preservation work?
☐ Yes ☐ No
26. (Answer only if your school has a preservation specialization.) Is practical experience (obtained through internships or fieldwork) required for the specialization in preservation?
☐ Yes ☐ No
27. Does your institution provide internship opportunities within its own library system?
☐ Yes (please list departments that host interns):

☐ No
28. What types of sites (external to the institution) host preservation interns?
☐ Libraries ☐ Historical societies
☐ Archives ☐ Commercial vendors
☐ Museums ☐ Other: _____
29. Estimate the percentage of the internship sites provides some sort of remuneration (wage, stipend, etc.)? _____

Postgraduate Employment

30. Do you track students seeking employment in the area of conservation and/or preservation management?
☐ Yes (go to next question) ☐ No (go to question 32)
31. If so, how many students of your program have been hired in preservation-related positions after graduation in the last five years (e.g., as preservation administrators)?
☐ 2003 ☐ 2001 ☐ 1999
☐ 2002 ☐ 2000

Future Participation in This Study of Preservation Education Needs

32. May the investigators of this study contact you or a representative of your institution again about participating in the next phase of this study? Please check the appropriate box below with your preference and include contact information if requested.
- ☐ No, I am not interested in further participation. Please do not contact me again.
☐ Yes, I (or a representative of my institution) would be interested in further participation. Please contact _____ at the following address, phone number, and/or e-mail: _____

 Phone: _____ E-Mail: _____

Thank you for participating in this survey! Any further questions or comments may be directed to Dr. Karen F. Gracy (kgracy@pitt.edu) or Ms. Jean Ann Croft (jeanann@pitt.edu).

Book Reviews

Edward Swanson

The Changing Nature of the Catalog and Its Integration with Other Discovery Tools: Final Report. Prepared for the Library of Congress by Karen Calhoun. Mar. 17, 2006. 52 p. Available at www.loc.gov/catdir/calhoun-report-final.pdf.

Rethinking How We Provide Bibliographic Services for the University of California: Final Report. The University of California Libraries, Bibliographic Services Task Force. Dec. 2005. 79 p. Available at <http://libraries.universityofcalifornia.edu/sopag/BSTF/Final.pdf>.

In recent months, two documents, *The Changing Nature of the Catalog and Its Integration with Other Discovery Tools: Final Report* (Calhoun report) and *Rethinking How We Provide Bibliographic Services for the University of California: Final Report* (UC report), have received much attention within the library community, particularly among catalogers and library administrators. Not surprisingly, these stakeholders have had very different reactions to the reports. To some library administrators, the reports have been seen as innovative attempts to find much-needed solutions for the high costs of technical services processing and to better position research libraries for the digital information environment by re-envisioning the online catalog to meet the information-seeking needs and behaviors of an increasingly Google-aphilic public. Catalogers have responded somewhat differently.

Both reports have been widely criticized in the cataloging community (as represented by attendees of the 2006 American Library Association Annual Conference and by subscribers to AUTOCAT and other cataloging-related electronic lists). While many discussions have focused on specific recommendations in one or both of the documents, others have focused on misrepresentations of research, faulty assumptions, or the “nefarious” intentions of the authors. One posting even compared the disagreements over cataloging’s future to a culture war among “two camps with widely divergent views. . . with each side trying to (re)claim the purpose and nature of cataloging and catalogs for both present and future.”¹

The analogy is not without merit. Many catalogers see these documents as conclusive proof that evil *does* exist in the world, or at least see the documents as myopic attempts to: (1) dismantle cataloging practices that have effectively served our patrons for centuries, (2) radically change the mission and priorities of research libraries, and (3) justify gambling on promised technological innovations yet to be

fully developed or implemented. While I tend to agree with this view, it is important not to dismiss these documents without serious consideration of their content. It must be acknowledged that many of the reports’ conclusions are not altogether unreasonable. These documents, while inflammatory, do contain some well-reasoned arguments for examining cataloging processes and workflows. Even the most die-hard cataloger will admit that cataloging and catalogs are not without problems; for decades, catalogers themselves have been saying that online catalogs are difficult to use. Many of the recommendations, such as the oft-stated inclusion of spell-check, reviews, book jackets, tables of contents, and greater access to full text, are reasonable and desirable. Several flawed or suspect assumptions, and some radical suggestions for changes without substantiation, however, damage the documents’ overall credibility within the cataloging community. Some of the more dubious recommendations include:

- abandoning the attempt to do comprehensive subject analysis manually with Library of Congress Subject Headings (LCSH) in favor of subject keywords (Calhoun report, 18);
- urging the Library of Congress (LC) to dismantle LCSH (Calhoun report, 18);
- defining fast turnaround and delivery as the standard of quality service, not the fullness of cataloging data (Calhoun report, 18);
- replacing the traditional LCSH structure with a more structured syntax, such as Faceted Application of Subject Terminology (FAST) (UC report, 23); and
- using controlled vocabularies only for name, uniform title, date, and place, and abandoning the use of controlled vocabularies for topical subjects (UC report, 24).

Problems abound with these and other recommendations. For example, the unfinished FAST was not designed as a replacement for LCSH, and research has shown that results of keyword searching are reduced by one-third when LCSH is removed (and tables of contents are *not* adequate substitutes for LCSH).² As catalysts for discussion, both reports had potential to begin constructive discourse on the future of cataloging, but LC’s abrupt change in series authority control and the aggressive campaign by Deanna Marcum, associate librarian for library services at LC, to transform cataloging have damaged the prospects for discus-

sions to be conducted amicably in the near future. It appears to many that cataloging is under attack by those who should be defending it.

It is also important not to lump both documents together into a single category. There are significant differences between the two in their goals and their influence. The UC report is less problematic. It is an investigative report written to stimulate discussion of the future of the catalog and cataloging services in the University of California library system; it explores how *one* library system can rethink its own workflow. The recommendations made by the task force have not been implemented wholesale, nor will they be. In an April 2006 AUTOCAT posting, Sarah Shatford Layne put the nature of the report into perspective:

I would urge everyone to take the recommendations in the "California Report" as a point of departure for discussions, not as a blueprint for action. The recommendations in the report were intended for *discussion* within the UCs, not necessarily for implementation. . . . The presence of a recommendation in the report does not necessarily mean that the recommendation will be implemented by the UC system.³

There are no suggestions that other libraries should follow their lead. The same, however, cannot be said of the Calhoun report, which states that it was written, "from the perspective of major research libraries in general, rather than focusing on the issues as they relate to LC specifically"(8).

When considering these reports, it is difficult not to mention other recent documents on the same topics, specifically Marcum's "The Future of Cataloging"⁴ and Thomas Mann's critical review of the Calhoun report.⁴ Marcum's paper and Calhoun's report contain many of the same suggestions; their points and concerns for the future are unsurprisingly similar. Mann's papers, however, voice a dissenting opinion. He views many of Calhoun and Marcum's underlying assumptions as faulty, particularly Calhoun's use of a business model as a framework for evaluating the future of the catalog. Mann points out that research libraries exist not to secure a greater market share or to generate profits, but to promote *scholarship*—something endangered by the suggestions and actions of Marcum, Calhoun, and others pursuing a promised (but still uncertain) digital utopia based on Google-like searching, minimal cataloging, digitizing books (no matter the copyright implications), and eliminating human-based subject analysis (no matter the chaos and loss of information that would ensue). Mann states:

According to the Calhoun report, library operations that are not digital, that do not result in resources that are remotely accessible, that involve professional human judgment or expertise, or that

require conceptual categorization and standardization rather than relevance ranking of keywords, do not fit into its proposed "leadership" strategy. . . . Its recommendations to eliminate Library of Congress Subject Headings, and to use "fast turnaround" time as the "gold standard" in cataloging, are particularly unjustified, and would have serious negative consequences for the capacity of research libraries to promote scholarly research.⁵

Calhoun justifies her recommendations early in her report: "Today, a large and growing number of students and scholars routinely bypass library catalogs in favor of other discovery tools, and the catalog represents a shrinking proportion of the universe of scholarly information. The catalog is in decline, its processes and structures are unsustainable, and change needs to be swift" (5). Throughout her report, she repeats that students and scholars do not use the library catalog *first* (implying disingenuously that they do not use the library catalog *at all*), preferring Internet search engines instead. Marcum, too, uses this argument, focusing on undergraduates as typical library patrons. "We recognize that the way people seek information has changed dramatically. Younger people go to Google, and don't go first to our catalogs. We've done a great job of identifying high-quality materials, of describing them, but we see that users appear to put a higher premium on convenience and speed." Both cite results of information-seeking-behavior studies on which to model library services. Neither, however, discriminates between the related (but distinct) processes of simple information seeking and in-depth scholarly research. It is alarming that they place so much emphasis on the needs of casual information seekers and so little attention to the needs of scholars.

Calhoun's suggestion that automated processes should replace intellectual categorization and description could have devastating effects on the scholar. Heeding the call to simplify cataloging and to eliminate subject analysis would be tailoring catalogs to the lowest common denominator. By using a simple information-seeking model to redesign online catalogs, these visionaries may just succeed in destroying the scholar's ability to conduct genuine research, with serious, long-term consequences for education and the intellectual life of this country. Dumbing-down effective systems of description and subject access to meet the needs of casual information seekers does a disservice to those who genuinely need access to information resources that have been organized into conceptual categories, which reveal bibliographic and subject relationships. Finding *something*—a cornerstone of Internet information seeking—is not satisfactory in actual scholarly endeavors; one does not use Google to conduct a literature review. Marcum and Calhoun should know that.

In "An Essay on Criticism," Alexander Pope wrote:

A little Learning is a dang'rous Thing;
 Drink deep, or taste not the Pierian Spring:
 There shallow Draughts intoxicate the Brain,
 And drinking largely sobers us again.⁶

This quotation is especially germane to the Calhoun and UC reports. Both reports are useful for stimulating discussions of the future direction of cataloging, but it is hoped that readers who view these documents as blueprints for action will remember Pope's words. One also hopes they will be seen through the lens of debate rather than as set rationales for doing irreparable harm to scholarship, the scholar's ability to access our accumulated store of knowledge effectively and efficiently, and the profession of librarianship itself. Pope's quotation is a caveat to those who prefer cost reductions over their responsibility to future generations of scholars and researchers. While both documents have their place in library science literature, a superficial, indiscriminate, or inexperienced review of these documents by those just looking for justification to alter the basic functions of libraries in order to cut costs is indeed "a dang'rous Thing."—*Daniel N. Joudrey (Joudrey@simmons.edu), Simmons College, Boston*

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2. Tina Gross and Arlene G. Taylor, "What Have We Got to Lose? The Effects of Controlled Vocabulary on Keyword Searching Results," *College & Research Libraries* 66, no. 3 (2005): 212–30.
3. Sarah Shatford Layne, e-mail to AUTOCAT, Apr. 12, 2006, <http://listserv.acsu.buffalo.edu/cgi-bin/wa?A2=ind0604B&L=AUTOCAT&P=R3372&I=-3&X=7FD06343C55B790EC8>.
4. Deanna B. Marcum, "The Future of Cataloging," *Library Resources & Technical Services* 50, no. 1 (2006): 5–9; also available at www.guild2910.org/marcum.htm; Thomas Mann, "'The Changing Nature of the Catalog and Its Integration with Other Discovery Tools. Final Report.' Mar. 17, 2006. Prepared for the Library of Congress by Karen Calhoun. A Critical Review," Library of Congress Professional Guild AFSCME Local 2910, www.guild2910.org/future.htm (accessed July 5, 2006).
5. Mann, "The Changing Nature of the Catalog."
6. Alexander Pope, "An Essay on Criticism," E-Server Poetry Collection, <http://poetry.eserver.org/essay-on-criticism.html> (accessed July 5, 2006).

IFLA Cataloguing Principles: Steps towards an International Cataloguing Code, 2: Report from the 2nd IFLA Meeting of Experts on an International

Cataloguing Code, Buenos Aires, Argentina, 2004. IFLA Series on Bibliographic Control, vol. 28. Eds. Barbara B. Tillett and Ana Lupe Cristán. München: K. G. Saur, 2005. 227 p. €78 cloth (ISBN 3-598-24277-8).

This volume consists chiefly of translations into Spanish of some of the presentation papers and background papers that were published in the predecessor volume *IFLA Cataloguing Principles: Steps towards an International Cataloguing Code: Report from the 1st IFLA Meeting of Experts on an International Cataloguing Code, Frankfurt, 2003*, which was reviewed in the July 2005 issue of *LRTS*. Some of the papers seem to have been rearranged or expanded for this volume, but this reviewer's Spanish is not good enough to judge the quality of the translations. Some material is presented in both English and Spanish, such as the introductory material, including the draft of the Statement of International Cataloguing Principles as updated through January 2005 and the recommendations from the meeting's working groups. The recommendations are mostly in the form of notes on discussions held by the various working groups. There were working groups on personal names, corporate names, seriality, multipart structures, and uniform titles and general material designations (GMDs). The groups studied the principles drafted at the Frankfurt meeting and made some recommendations on how they might be amended.

Some of the modifications proposed in the January 2005 draft of the statement were confusing. Section 5.4.1 ("The corporate name should be given in direct order, as commonly found on manifestations" [29]) is an important addition, but it still says nothing about how to handle subordinate bodies, as the Paris Principles did in section 9.6. In section 5.5.1, on uniform titles, the following statement was added: "Always add language and title" (30). Unfortunately, there is little justification or elucidation for this and other changes in the recommendations of the working groups, except to say that it is "convenient" (203). However, the April 2006 draft available online does include a statement about subordinate bodies and omits the addition to uniform titles.¹

The statement of principles makes no mention of main entry or similar concepts, but the section on corporate body access points contains language taken from the 1961 Paris Principles for making main entry under a corporate body. This paragraph seems unnecessary if no access point is being chosen as the primary one. The next paragraph goes on to allow additional access points.

The value of this book lies in the documentation of the process of developing a statement of principles to replace the 1961 Paris Principles and making recommendations for a possible future international cataloguing code. A third meeting was held for Middle East experts in December 2005, and regional meetings are planned in conjunction

with the IFLA conferences in Seoul, South Korea, in 2006, and Durban, South Africa, in 2007. The Frankfurt meeting, which included representatives of all the European as well as the Anglo-American cataloging traditions, laid the foundation for the other meetings by comparing various cataloging codes and drafting the initial statement of principles. This seems only appropriate, as Europe and North America have the longest and most-developed cataloging traditions. It seems likely that the other regional meetings will introduce some refinements to the work done in Frankfurt, but no major breaks with the principles developed there. It is unclear what kind of input the experts from the earlier meetings will have concerning changes recommended by the later meetings.—*John Hostage* (hostage@law.harvard.edu), *Harvard Law School, Cambridge, Mass.*

Reference

1. Statement of International Cataloguing Principles, "Final" Draft Based on Responses through Dec. 2004 showing further recommended changes from Buenos Aires August 2004 and Cairo Dec. 2005, Apr. 3, 2006, draft, www.ddb.de/standardisierung/afs/imeicc_papers.htm (accessed July 9, 2006).

Metadata in Practice. By Diane I. Hillmann and Elaine L. Westbrook. Chicago: ALA, 2004. 285 p. \$50 (\$45 ALA members) paper (ISBN 0-8389-0882-9).

Metadata in Practice is a compilation of essays that describe the real-world applications of metadata to digital projects across a spectrum of cultural heritage and library institutions of various sizes and discuss the future development metadata. The editors, Diane I. Hillmann and Elaine L. Westbrook, both of Cornell University Library, have brought together discussions of the project-planning and implementations stages of nearly a dozen disparate projects to organize and increase the accessibility of digital and digitized materials. *Metadata in Practice* is organized into two main sections: "Part I: Project-Based Implementations," which contains eleven chapters describing eleven separate projects; and "Part II: The Future of Metadata Development and Practice," which contains five chapters describe various theoretical aspects of the future of metadata. These sections are preceded by a thoughtful and well-written introduction by the editors.

In their very thorough introduction, the editors provide both a narrative and a synthesis of the major points, or themes, discussed throughout the upcoming chapters. They state that *Metadata in Practice* is an attempt "to cover a broad range of communities and metadata formats" (xv), which they have accomplished quite nicely. While the stated aim of the book is to aid "wanderers in the [metadata] wilderness" (xv), it is not intended to replace Priscilla Caplan's *Metadata Fundamentals for All Librarians*, which is a survey

of metadata formats, standards and definitions.¹ *Metadata in Practice* complements Caplan's work and provides case studies on successful digital- and digitized-resource projects; addressing metadata decisions made by project planners and implementers.

However, it does not consider the history or development of metadata standards or the technical aspects of data retrieval. A useful guide for those interested in the history and development of several metadata standards is David Haynes's *Metadata for Information Management and Retrieval*.² Haynes's text also has some case-study-like examples from implemented projects, but they are not as comprehensive as those in *Metadata in Practice*. Approximately two-thirds of *Metadata in Practice* discusses specific, project-related applications of metadata standards, schema, and thesauri, as well as (and just as importantly) the decision-making processes leading up to the implementation of those standards for those projects. This aspect of the project description is what I found to be the among the greatest strengths of *Metadata in Practice*.

Another important aspect of *Metadata in Practice* is that the editors succinctly delineate the questions and problems facing all metadata-related project planners, such as:

- Where do I start?
- What is the current standard for [organizing, describing, creating digital versions, recording administrative or preservation metadata]?
- How can I recognize when the terminology changes from document to document?

After discussing the pervasive questions of project planners, the editors identify three major themes from the "lessons learned" portions of each chapter in section I of the book: (1) change happens—constantly, (2) stick to standards as much as possible, and (3) try to anticipate future use of your data (xvi). Although *Metadata in Practice* as a whole may seem to be disjointed because the reader is required to shift a number of times, it can be seen as an important resource for digital resource project planners.

The projects described in part I span those created in a consortial environment to those from single institutions, while the project implementation descriptions discuss such varied schema as Dublin Core (DC), the Visual Resources Association Core Categories, Machine Readable Cataloging, and Resource Description Framework as well as home-grown metadata schema. The chapters not only describe a variety of metadata standards and tools, but the topics of the diverse projects include educational materials, image collections, citation metadata, and geographic information systems. The authors of all of the chapters emphasize the importance of following the established standards and creating documentation. Several of them stress the importance

of remaining up-to-date on the standards and recognizing the discrepancy between emerging standards and those that are established. Many of the chapters include descriptions of efforts to address Open Archives Initiative-Protocol for Metadata Harvesting (OAI-PMH). Simply, OAI-PMH is a framework that enables metadata sharing, which is frequently a requirement of grant-funded, archival projects.

The most important issues discussed in part II are found in chapter 15, "The Continuum of Metadata Quality: Defining, Expressing, Exploiting," by Thomas R. Bruce and Diane I. Hillmann, and in chapter 16, "Metadata Futures: Steps toward Semantic Interoperability," by Rachel Heery. In chapter 15, Bruce and Hillmann discuss the implications of approaching questions of quality, quality measures and metrics, defining levels of quality for metadata, and improving metadata quality both in the short and long terms. The chapter usefully includes a chart that provides a rubric of quality measures, quality criteria, and compliance indicators that can be employed when assessing metadata quality for a wide range of projects, domains, media types, and funding levels. In chapter 16, Heery emphasizes the need to "future-proof investment in systems" (257) in light of the rapid change in technologies, but focuses primarily on the developments regarding the Semantic Web and how improvements in interoperability and the deployment of technology could support its realization.

Overall, *Metadata in Practice* both provides guidance in planning digital resource projects and interesting points for future consideration. The editors did a fine job of bringing together discussions of seemingly unrelated projects under one framework and highlighting the ways in which the decision-making processes during planning were similar. Many of the essays provide assistance in the planning and implementation processes, so, even when the projects might vary greatly, *Metadata in Practice* provides a useful guide.—*Jacqueline Samples (jacquie_samples@ncsu.edu), North Carolina State University Libraries, Raleigh*

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2. David Haynes, *Metadata for Information Management and Retrieval* (London: Facet Pub., 2004).

Metadata: A Cataloger's Primer. Ed. Richard P. Smiraglia. New York: Haworth, 2005. 303p. \$59.95 cloth (ISBN 978-0-7890-2800-6/0-7890-2800-X); \$39.95 paper (ISBN 978-0-7890-2301-3/0-7890-2301-8). Published simultaneously as *Cataloging & Classification Quarterly* 40, no. 3/4.

Even though the term "metadata" has been batted around now for ten years, it still causes confusion. Even catalogers, who basically invented the practice, do not always understand the full meaning of the term, nor how

their work falls into its definition. Therefore, yet another book on metadata for librarians is warranted in this field. The subtitle of this book clearly defines its audience, an audience that would do well to read these chapters if they are not already working with metadata projects outside of the traditional bibliographic realm.

Priscilla Caplan's *Metadata Fundamentals for All Librarians* is a good overview, with enough detail to give the reader a strong sense of the metadata field.¹ This book's more-specific purpose centers on the craft of metadata application (part II in particular). It also offers a rather rigorous foundation in part I, which introduces readers to metadata in the "bibliographic sphere" (14). While the introduction indicates that chapters will pair metadata and cataloging throughout the text, I found that depends on the writer and topic. Each chapter is written by a professional in a specific area, and naturally the context, as well as discussion of cataloging, varies. It was easier for me to experience each chapter individually and let it flow based on its own worldview. The authors are very good at defining the context and terms at the opening of each chapter. This approach makes it easy to read the chapters out of order, according to interest level, rather than strictly sequentially.

Diane Hillmann's and Elaine Westbrook's *Metadata in Practice* also is complemented by this volume.² As a book of reports and case studies, it offers good background in a practical sense. *Metadata: A Cataloger's Primer*, by contrast, gives a greater understanding to such studies by showing the intellectual foundations behind their development. The introduction, for example, discusses metalanguages, such as SGML and HTML, defining such standardized markup languages within the world of bibliographic description.

Part I, "Intellectual Foundations," covers a favorite topic of mine in Jane Greenberg's opening chapter. There is a philosophical basis to metadata and controlled values, particularly in controlled vocabularies for subject terms and keywords. Thesauri and classification themes owe a debt to the field of epistemology (theory of knowledge and *Weltanschauungen*) that should be emphasized and studied, at least briefly, for a well-rounded understanding of how such systems are developed. That this volume can include this concept, in an accessible manner, speaks well for its intellectual rigor.

The second chapter in this part meets the introductory goal of connecting metadata and bibliographic control with a coherent discussion of comparisons and contrasts. As with most chapters, the author sets out definitions clearly and succinctly. Interoperability is the emphasis in the road to converging these two concepts and disciplines.

Just as the first chapter cites a philosophical basis for metadata scheme elements, the third chapter draws from structuralist literary theory. "Metadata, Metaphor, and Metonymy" delves into the types of metadata, including

descriptive (metadata for discovery) and structural (metadata for use). This concept further serves to connect the theoretical background of metadata to application design, such as database structures.

The final three chapters in part I include two case studies and a discussion of the creator element (in Dublin Core parlance). In each, the bigger contexts set out in the earlier chapters are cited in the well-written descriptions and conclusions.

Part II, "How to Create, Apply, and Use Metadata," is delightfully straightforward. Dublin Core, EAD (Encoded Archival Description), XML (eXtensible Markup Language), and METS (Metadata Encoding and Transmission Standard) emerge as understandable and practical applications. The final chapter, on implementing a digital repository, is of special interest these days, when so many digital initiatives are in the works. I particularly appreciated the clearly defined steps for such a project. This kind of concrete information is hard to find in a field dominated by more theoretical writings.

Metadata: A Cataloger's Primer does a fine job of setting the intellectual stage for metadata projects, defining slippery terms, clarifying mushy concepts, and weaving together the disparate theories behind the development of metadata. The second part then demonstrates how to put that all into practice in a manner that helps a metadata applier or project manager cope with the many aspects of implementing a specific initiative. For a cataloger trained in the bibliographic sphere, this book will offer much to enhance understanding of these metadata ideas.—Eileen Quam (eileen.quam@state.mn.us), Minnesota Office of Enterprise Technology, St. Paul

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1. Priscilla Caplan, *Metadata Fundamentals for All Librarians* (Chicago: ALA, 2003).
2. Diane I. Hillmann and Elaine L. Westbrooks, eds., *Metadata in Practice* (Chicago: ALA, 2004).

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Compiled by Edward Swanson

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- a. authors—of articles, reviews, and letters
- b. titles—of articles and of articles about which letters were published
- c. subjects—of articles and of books reviewed

Subject entries for individuals and corporate bodies are identified by “(about)”; letters are identified by “(c).” Reviews are indexed by name of reviewer and by subject of the work reviewed, identified by “(r).” They are also listed by title under the heading “Books reviewed.”

Subject headings are based mainly on: *ASIS&T Thesaurus of Information Science, Technology, and Librarianship*, 3rd ed., edited by Alice Redmond-Neal and Marjorie M.K. Hlava (Medford, N.J.: Published on behalf of the American Society for Information Science and Technology by Information Today, Inc., 2005).

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